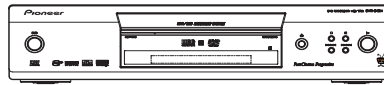


Service Manual



DVR-810H-S

ORDER NO.
RRV2814

DVD RECORDER

DVR-810H-S

DVR-57H

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

| Model | Type | Power Requirement | Regional restriction codes (Region No.) | Remarks |
|------------|------|-------------------|---|---------|
| DVR-810H-S | KU | AC120V | 1 | |
| DVR-57H | KU | AC120V | 1 | |

For R/RW Recorder section, this service manual includes only EXPLODED VIEWS except Traverse Mechanism Assy-s, Blockdiagram and MAIN ASSY contrast table. For the detail of R/RW Recorder section, refer to the service manual for DVR-105(Order No.RRV2706).

NECESSARY INFORMATION FOR DHHS RULES MARKED
ON THE TOP COVER BELOW:

DANGER-VISIBLE AND INVISIBLE LASER RADIATION
WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM.



For details, refer to "Important symbols for good services" .

SAFETY INFORMATION



This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 – Proposition 65

NOTICE

(FOR CANADIAN MODEL ONLY)

Fuse symbols (fast operating fuse) and/or (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE

(POUR MODÈLE CANADIEN SEULEMENT)

Les symboles de fusible (fusible de type rapide) et/ou (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

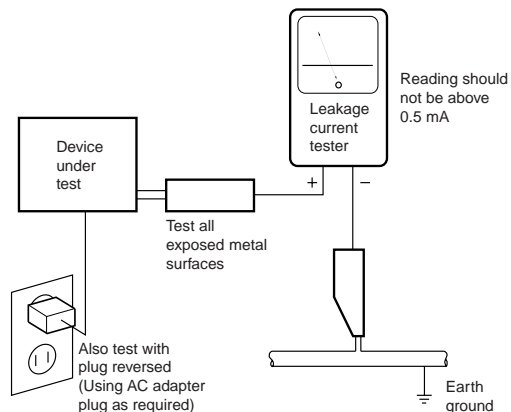
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60 Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5 mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.



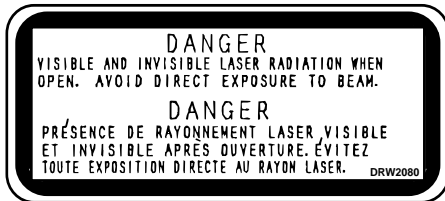
LABEL CHECK

IMPORTANT

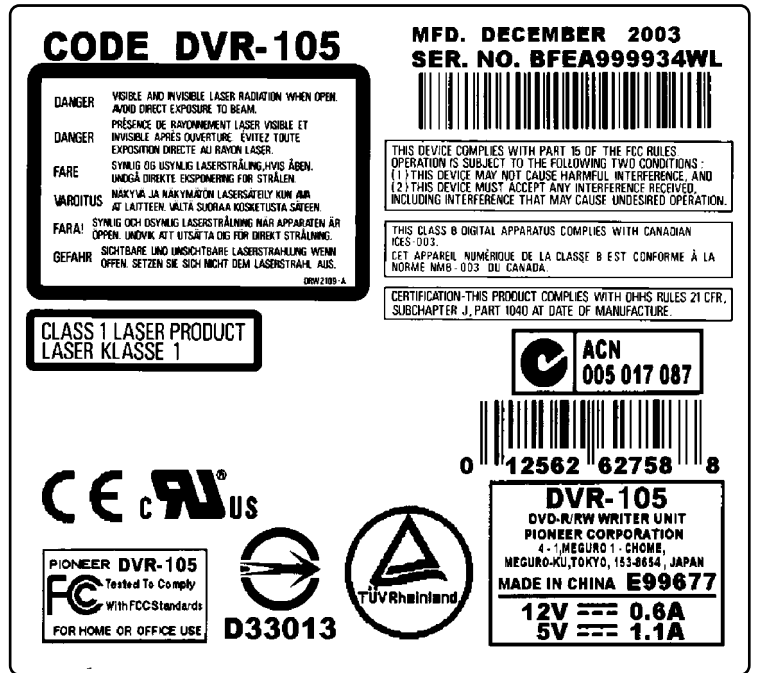
THIS PIONEER APPARATUS CONTAINS INVISIBLE LASER OF CLASS 3b and VISIBLE LASER OF CLASS 2. SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

LASER DIODE CHARACTERISTICS
MAXIMUM OUTPUT POWER: 25 mW
WAVELENGTH: 654 - 662 nm

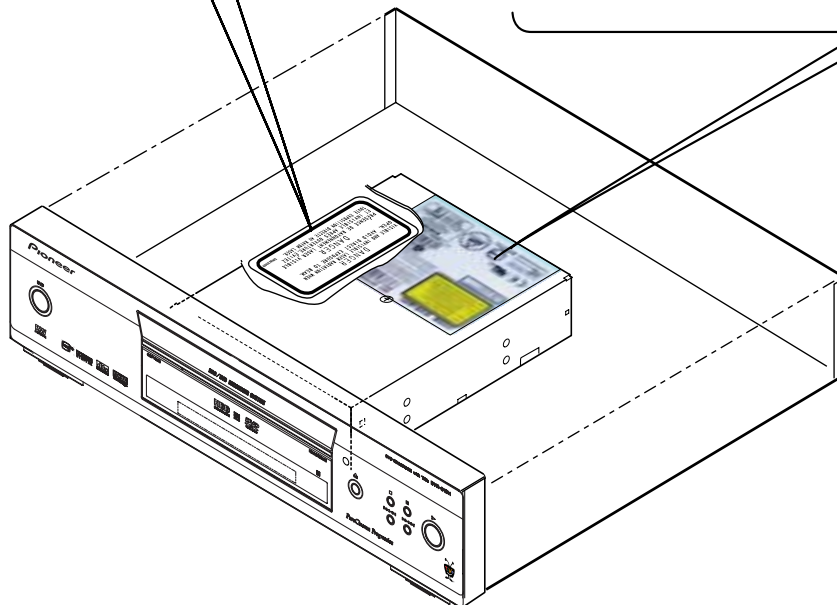
LASER DIODE CHARACTERISTICS
MAXIMUM OUTPUT POWER: 36 mW
WAVELENGTH: 780 - 787 nm



(DRW2080)



(DRW2120)



[Important symbols for good services]

In this manual, the symbols shown-below indicate that adjustments, settings or cleaning should be made securely. When you find the procedures bearing any of the symbols, be sure to fulfill them:

1. Product safety



You should conform to the regulations governing the product (safety, radio and noise, and other regulations), and should keep the safety during servicing by following the safety instructions described in this manual.

2. Adjustments



To keep the original performances of the product, optimum adjustments or specification confirmation is indispensable. In accordance with the procedures or instructions described in this manual, adjustments should be performed.

3. Cleaning



For optical pickups, tape-deck heads, lenses and mirrors used in projection monitors, and other parts requiring cleaning, proper cleaning should be performed to restore their performances.

4. Shipping mode and shipping screws



To protect the product from damages or failures that may be caused during transit, the shipping mode should be set or the shipping screws should be installed before shipping out in accordance with this manual, if necessary.

5. Lubricants, glues, and replacement parts



Appropriately applying grease or glue can maintain the product performances. But improper lubrication or applying glue may lead to failures or troubles in the product. By following the instructions in this manual, be sure to apply the prescribed grease or glue to proper portions by the appropriate amount. For replacement parts or tools, the prescribed ones should be used.

CONTENTS

| | |
|--|-----|
| SAFETY INFORMATION..... | 2 |
| 1. SPECIFICATIONS | 5 |
| 2. EXPLODED VIEWS AND PARTS LIST | 6 |
| 2.1 PACKING | 6 |
| 2.2 EXTERIOR SECTION | 8 |
| 2.3 FRONT PANEL SECTION | 12 |
| 3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM | 14 |
| 3.1 SYSTEM BLOCK DIAGRAM SECTION | 14 |
| 3.2 POWER SUPPLY SECTION..... | 16 |
| 3.3 OVERALL WIRING DIAGRAM | 18 |
| 3.4 MAIN ASSY (1/10)..... | 20 |
| 3.5 MAIN ASSY (2/10)..... | 22 |
| 3.6 MAIN ASSY (3/10)..... | 24 |
| 3.7 MAIN ASSY (4/10)..... | 26 |
| 3.8 MAIN ASSY (5/10)..... | 28 |
| 3.9 MAIN ASSY (6/10)..... | 30 |
| 3.10 MAIN ASSY (7/10)..... | 32 |
| 3.11 MAIN ASSY (8/10)..... | 34 |
| 3.12 MAIN ASSY (9/10)..... | 36 |
| 3.13 MAIN ASSY (10/10)..... | 38 |
| 3.14 FLKY, LEDB and KEYB ASSY..... | 40 |
| 3.15 POWER SUPPLY ASSY | 42 |
| 3.16 WAVEFORMS | 44 |
| 3.17 VOLTAGES_1..... | 48 |
| 3.18 VOLTAGES_2..... | 50 |
| 3.19 VOLTAGES_3..... | 52 |
| 4. PCB CONNECTION DIAGRAM | 53 |
| 4.1 FLKY, LEDB and KEYB ASSYS | 54 |
| 4.2 MAIN ASSY | 58 |
| 4.3 POWER SUPPLY ASSY | 62 |
| 5. PCB PARTS LIST | 63 |
| 6. ADJUSTMENT | 67 |
| 7. GENERAL INFORMATION | 68 |
| 7.1 DIAGNOSIS..... | 68 |
| 7.1.1 DISASSEMBLY | 68 |
| 7.1.2 CAUTIONS ON HANDLING THE HDD | 71 |
| 7.2 PARTS | 73 |
| 7.2.1 IC..... | 73 |
| 7.2.2 DISPLAY | 111 |
| 7.2.3 CLEANING | 112 |
| 8. PANEL FACILITIES | 113 |

1. SPECIFICATIONS

Specifications

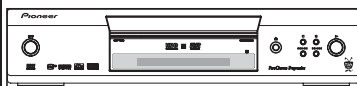
| | |
|---|--|
| Video In: | S-Video 4-pin mini DIN Composite Video RCA (2 pairs) |
| Video Out: | S-Video 4-pin mini DIN (2 pairs) Composite Video RCA (2 pairs) Component Video RCA |
| Audio Line In: | Stereo L/R RCA (2 pairs) |
| Audio Line Out: | Stereo L/R RCA (2 pairs) Digital Audio (Optical) |
| RF In: | F-Connector Female |
| RF Bypass Out: | F-Connector Female |
| Expansion Port: | USB |
| Telephone: | RJ-11 female, 2-wire |
| Control Change: | 3.5mm mini jack sockets (IR, Serial) |
| Power: | AC 120V 60Hz |
| Power consumption: | 49 Watts |
| Ambient (external) Operating Temperature: | 5C to 35C |
| Operating Humidity: | 85% or less |
| Dimensions: | 420mm W x 94mm H x 391mm D |
| Remote Control: | 39 Buttons |
| Storage: | ATA/IDE Hard Drive |



Actual recording capacity depends on signal quality and the type of programming being recorded.

Accessories

1. These are the basics:



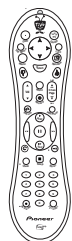
Recorder



Power Cord
(ADG7021)



Phone Line Splitter
(VKX1014)



Remote Control
(VXX2870)

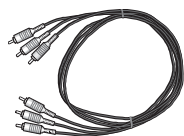


25i Phone Cord
(VDE1085)



RF Coaxial cable
(VDE1086)

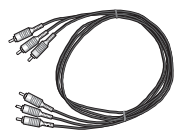
2. audio and video cables:



Composite A/V cable
(VDE1084)



S-Video cable (not supplied)



Component Video cable
(not supplied)

3. If you have a DIRECTV satellite receiver with a 9-pin Data connector, or a Motorola/GI DCT2000 series cable box, use this cable:



Serial (Data) Control cable*
(VDE1087)

If you can't use the Serial Control cable above with your satellite receiver or cable box, use this cable instead:



IR Control cable*
(VDX1009)

4. You may want to purchase these additional cables for some setups:



Optical Digital Audio cable



Component Video cable



S-Video cable



5



6



7



8



A

B

C

D

E

F



5



6

DVR-810H-S



7




8

7



2. EXPLODED VIEWS AND PARTS LIST

NOTES: ● Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.

● The  mark found on some component parts indicates the importance of the safety factor of the part.

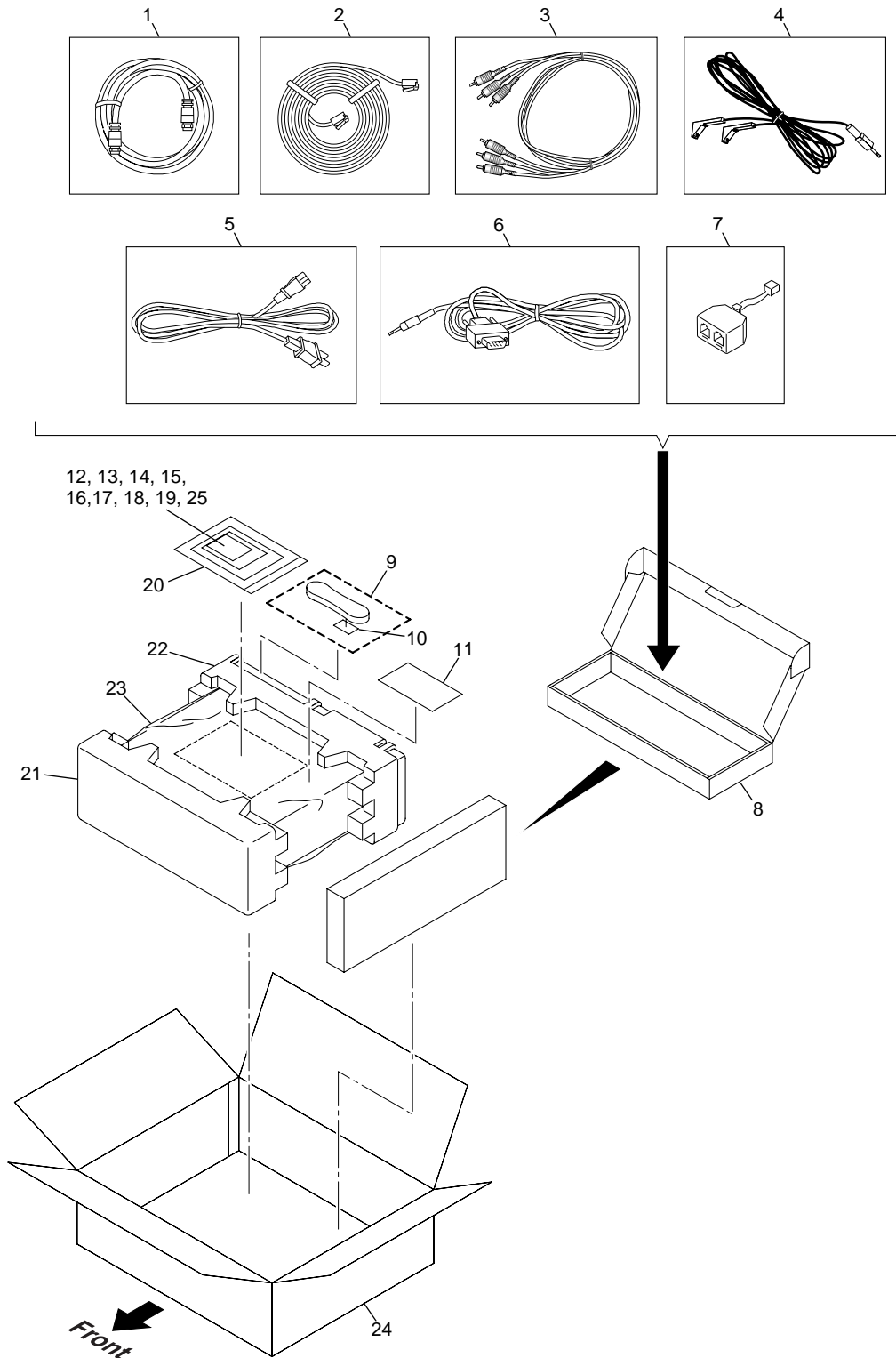
Therefore, when replacing, be sure to use parts of identical designation.

● Screws adjacent to ▼ mark on product are used for disassembly.


● For the applying amount of lubricants or glue, follow the instructions in this manual.

(In the case of no amount instructions, apply as you think it appropriate.)

2.1 PACKING



PACKING parts List

| <u>Mark No.</u> | <u>Description</u> | <u>Part No.</u> | <u>Mark No.</u> | <u>Description</u> | <u>Part No.</u> |
|---|----------------------|-----------------|-----------------|------------------------------------|-----------------------|
| 1 | RF Coaxial Cable | VDE1086 | NSP 14 | Warranty Card PA/POC | See Contrast table(2) |
| 2 | 25i Phone Cord | VDE1085 | NSP 15 | Warranty Card EL | See Contrast table(2) |
| 3 | Composite A/V Cable | VDE1084 | | | |
| 4 | IR Control Cable | VDX1009 | 16 | Operating Instructions (English) | VRB1323 |
|  5 | Power Cord | ADG7021 | NSP 17 | Installation Guide | VRM1113 |
| | | | NSP 18 | Registration Card | VRV1132 |
| 6 | Serial Control Cable | VDE1087 | NSP 19 | Dry Cell Battery (R6P, AA) | VEM1031 |
| 7 | Phone Line Splitter | VKX1014 | NSP 20 | Polyethylene Bag (0.03x230x340) | Z21-038 |
| 8 | Accessory Case | VHC1110 | | | |
| 9 | Remote Control Unit | VXX2870 | 21 | Front Pad | VHA1344 |
| 10 | Battery Cover | AZA7430 | 22 | Rear Pad | VHA1345 |
| NSP 11 | HDD Caution Label | VRM1117 | 23 | Mirror Mat | VHL1006 |
| NSP 12 | Caution | VRM1116 | 24 | Packing Case | See Contrast table(2) |
| NSP 13 | Start Here Poster | VRM1112 | 25 | Service Level Sheet | See Contrast table(2) |

(2) CONTRAST TABLE

DVR-810H-S/KU and DVR-57H/KU are constructed the same except for the following:

| Mark | No. | Symbol and Description | DVR-810H-S/KU | DVR-57H/KU |
|------|-----|------------------------|---------------|------------|
| NSP | 14 | Warranty Card PA/POC | ARY7045 | Not used |
| NSP | 15 | Warranty Card EL | Not used | ARY7007 |
| | 24 | Packing Case | VHG2381 | VHG2382 |
| NSP | 25 | Service Level Sheet | VRM1118 | VRM1119 |

2.2 EXTERIOR SECTION

A

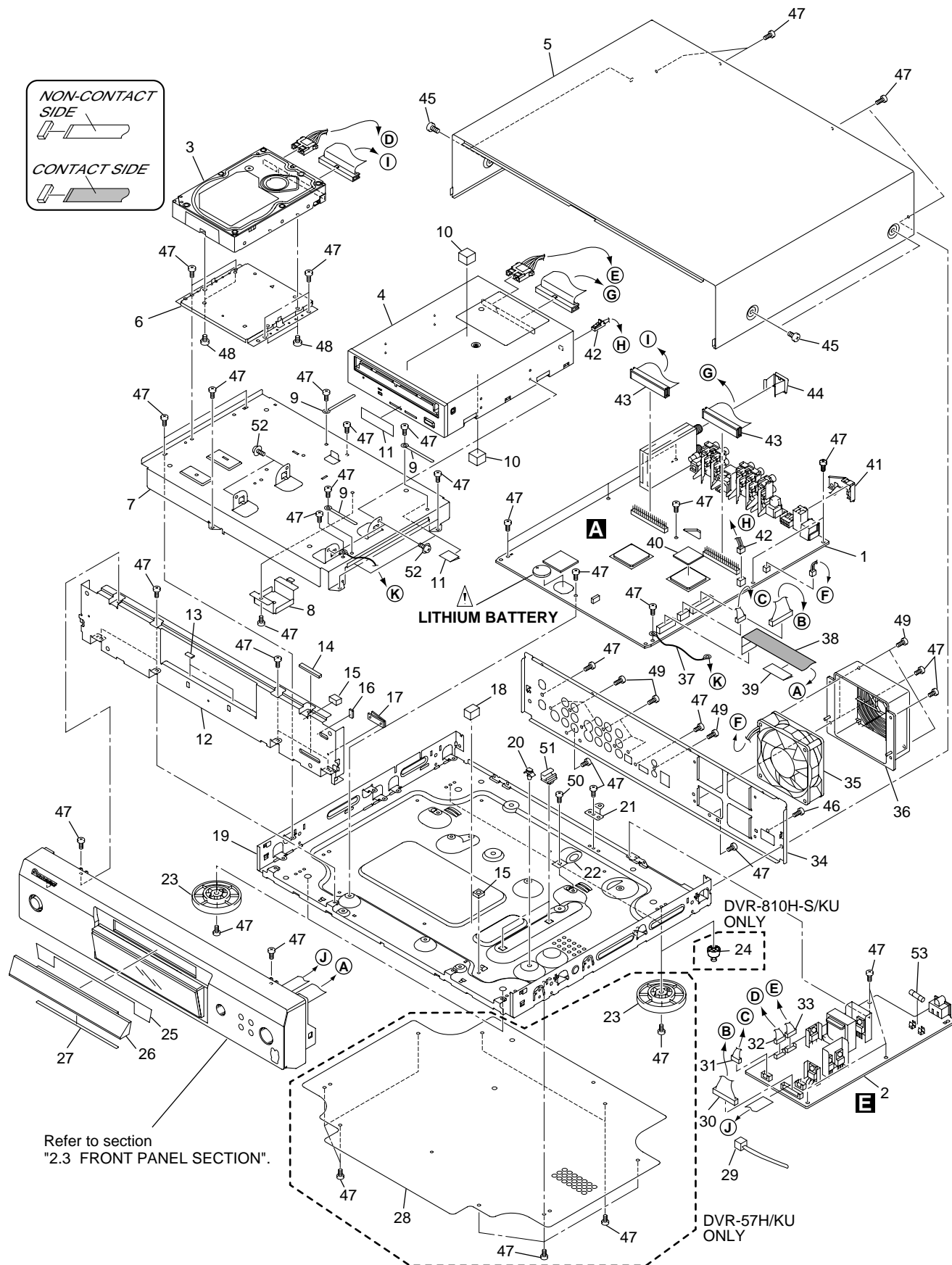
B

C

D

E

F



EXTERIOR SECTION parts List

| Mark No. | Description | Part No. | Mark No. | Description | Part No. | |
|----------|---------------------|-----------------------|----------|----------------------|-----------------------|---|
| | 1 MAIN Assy | See Contrast table(2) | NSP 28 | Layer Plate | See Contrast table(2) | A |
| ⚠ | 2 POWER SUPPLY Assy | VWR1372 | NSP 29 | Binder | ZCA-BK1 | |
| | 3 HDD | See Contrast table(2) | ⚠ 30 | Connector Assy (14P) | PF14PP-D20 | |
| | 4 DRIVE Assy R5 | VXX2899 | | | | |
| | 5 Bonnet-S | See Contrast table(2) | 31 | Connector Assy (5P) | PF05PP-D15 | |
| | | | 32 | Housing Assy | VKP2291 | |
| NSP 6 | HDD Stay | VNE2290 | 33 | Housing Assy | VKP2295 | |
| NSP 7 | Sub Chassis | VNE2325 | 34 | Rear Panel | See Contrast table(2) | |
| NSP 8 | Heat Sink | VNE2292 | 35 | DC Fan Motor | VXM1108 | |
| | 9 Cord Holder | RNH-184 | | | | |
| | 10 Gasket A | VEC2382 | 36 | FAN Cover | See Contrast table(2) | |
| | | | NSP 37 | Earth Lead Wire | DE010VC0 | B |
| | 11 Flexible Protect | VEC2325 | 38 | Flexible Cable (17P) | VDA1984 | |
| NSP 12 | Front Stay | VNE2326 | 39 | Flexible Protect | VEC2325 | |
| | 13 Gasket U | VEC2399 | 40 | Sheet | VEB1362 | |
| | 14 Cushion L | VEB1364 | | | | |
| | 15 Disc Guard | VEB1363 | 41 | Earth Plate IR | VBK1150 | |
| | | | 42 | Housing Assy | VKP2297 | |
| | 16 Cushion S | VEB1365 | 43 | Housing Assy (U-ATA) | VKP2319 | |
| | 17 Flat Clamp | VEC2401 | 44 | Earth Plate TU | VBK1149 | |
| | 18 Rubber Spacer | VEB1359 | 45 | Screw | See Contrast table(2) | |
| NSP 19 | Base Chassis | VNA2622 | | | | |
| | 20 Card Spacer A | VEC1708 | 46 | Screw | PPZ30P080FMC | C |
| | | | 47 | Screw | BBZ30P060FMC | |
| NSP 21 | PCB Stay | VNE2327 | 48 | Screw | DBA1125 | |
| | 22 Ferrite Core | VTH1048 | 49 | Screw | BPZ30P080FZK | |
| | 23 Insulator | VXA2424 | 50 | Screw | IBZ30P080FCC | |
| | 24 Leg Assy | See Contrast table(2) | | | | |
| | 25 Tray Sheet L | VEC2367 | NSP 51 | P Plate Holder | PNY-405 | |
| | | | 52 | Screw | AMZ30P060FMC | |
| | 26 Tray Panel | See Contrast table(2) | ⚠ 53 | Fuse (FU101 : 3.15A) | VEK1074 | |
| | 27 Tray Sheet S | VEC2404 | | | | |

(2) CONTRAST TABLE

DVR-810H-S/KU and DVR-57H/KU are constructed the same except for the following:

| Mark | No. | Symbol and Description | DVR-810H-S/KU | DVR-57H/KU |
|------|-----|------------------------|---------------|--------------|
| | 1 | MAIN Assy | VWV1981 | VWV1982 |
| | 3 | HDD 80G 4R080L0 | VXF1010 | Not used |
| | 3 | HDD 120G 4R120L0 | Not used | VXF1016 |
| | 5 | Bonnet-S | VXX2891 | VXX2892 |
| | 24 | Leg Assy | VEC2185 | Not used |
| | | | | |
| | 26 | Tray Panel | VNK5348 | VNK5354 |
| NSP | 28 | Layer Plate | Not used | VNA2627 |
| | 34 | Rear Panel | VNA2625 | VNA2626 |
| | 36 | FAN Cover | VNK5343 | VNK5344 |
| | 45 | Screw | BCZ40P060FNI | BCZ40P060FZK |

2.3 FRONT PANEL SECTION

A

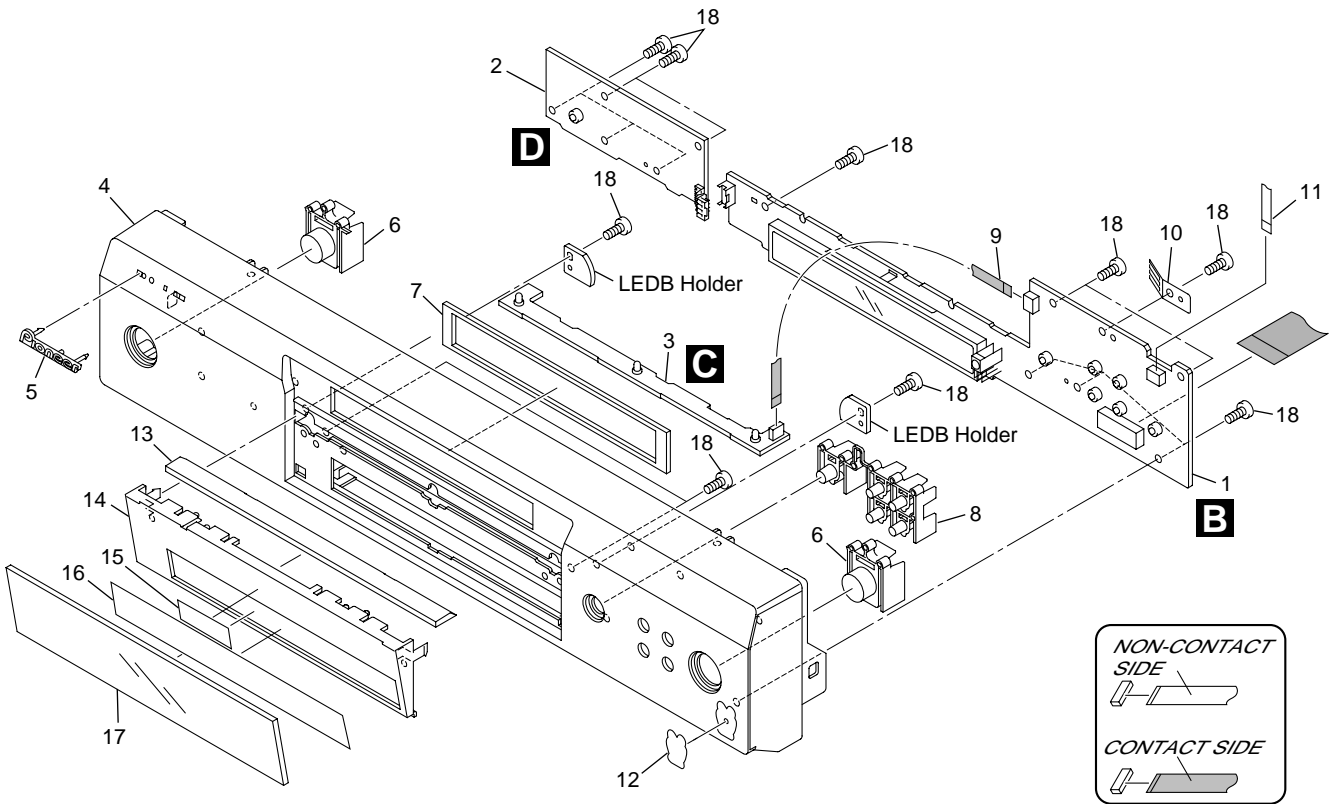
B

C

D

E

F



FRONT PANEL SECTION parts List

| Mark No. | Description | Part No. | Mark No. | Description | Part No. |
|----------|---------------------|-----------------------|----------|---------------------|-----------------------|
| 1 | FLKY Assy | VWG2438 | 11 | Flexible Cable (5P) | VDA1985 |
| 2 | KEYB Assy | VWG2439 | 12 | TIVO Badge | VAM1137 |
| 3 | LEDB Assy | VWG2440 | 13 | Illumination Lens | VNK5349 |
| 4 | Front Panel | See Contrast table(2) | 14 | Sub Panel | VNK5350 |
| 5 | Pioneer Badge | See Contrast table(2) | 15 | Hologram Label | VRW1962 |
| 6 | Play Key | See Contrast table(2) | 16 | FL Filter | See Contrast table(2) |
| 7 | Drive Sheet | VEC2366 | 17 | FL Lens | See Contrast table(2) |
| 8 | Main Key | See Contrast table(2) | 18 | Screw | BPZ30P080FZK |
| 9 | Flexible Cable (5P) | VDA1986 | | | |
| 10 | Earth Plate F | VBK1147 | | | |

(2) CONTRAST TABLE

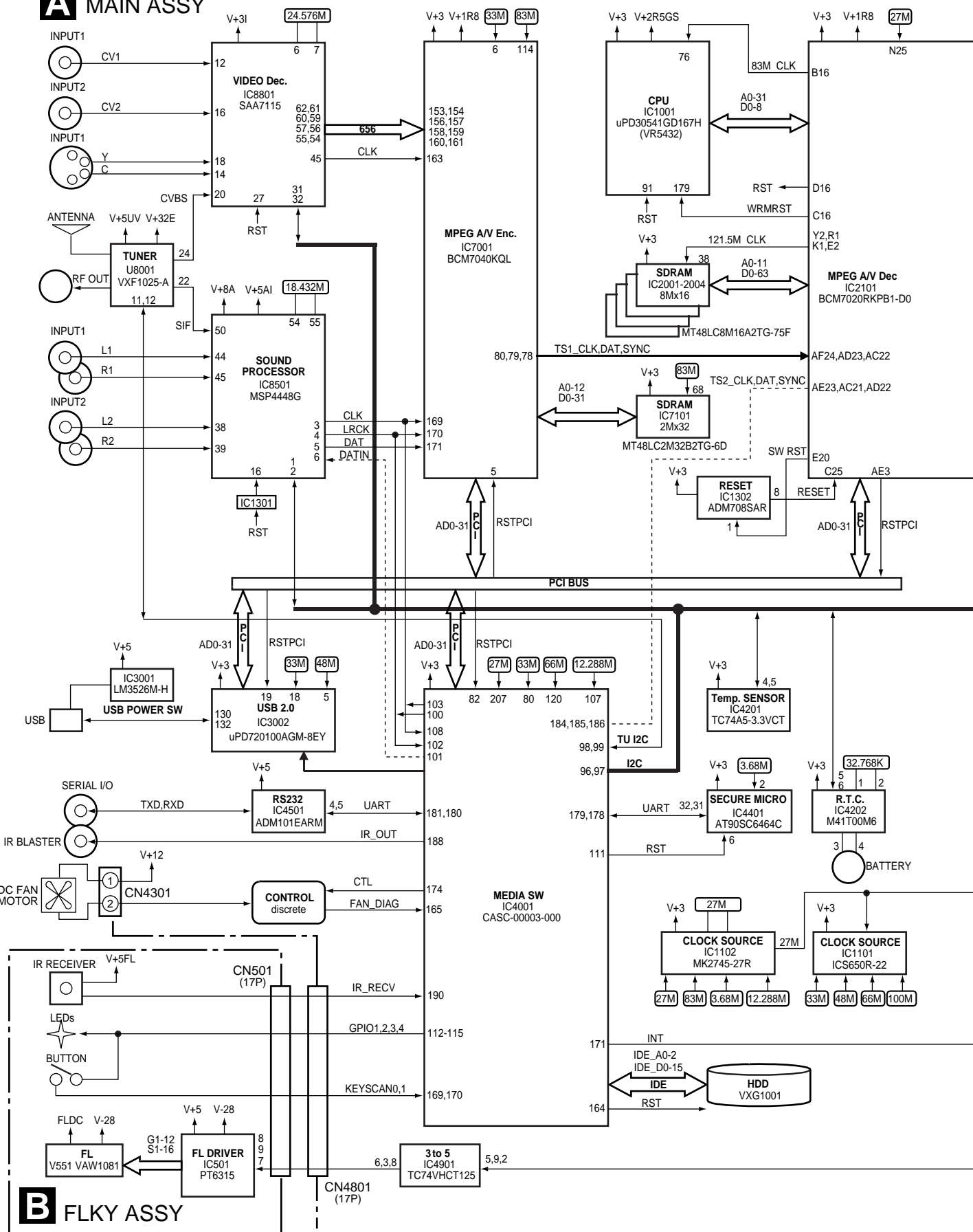
DVR-810H-S/KU and DVR-57H/KU are constructed the same except for the following:

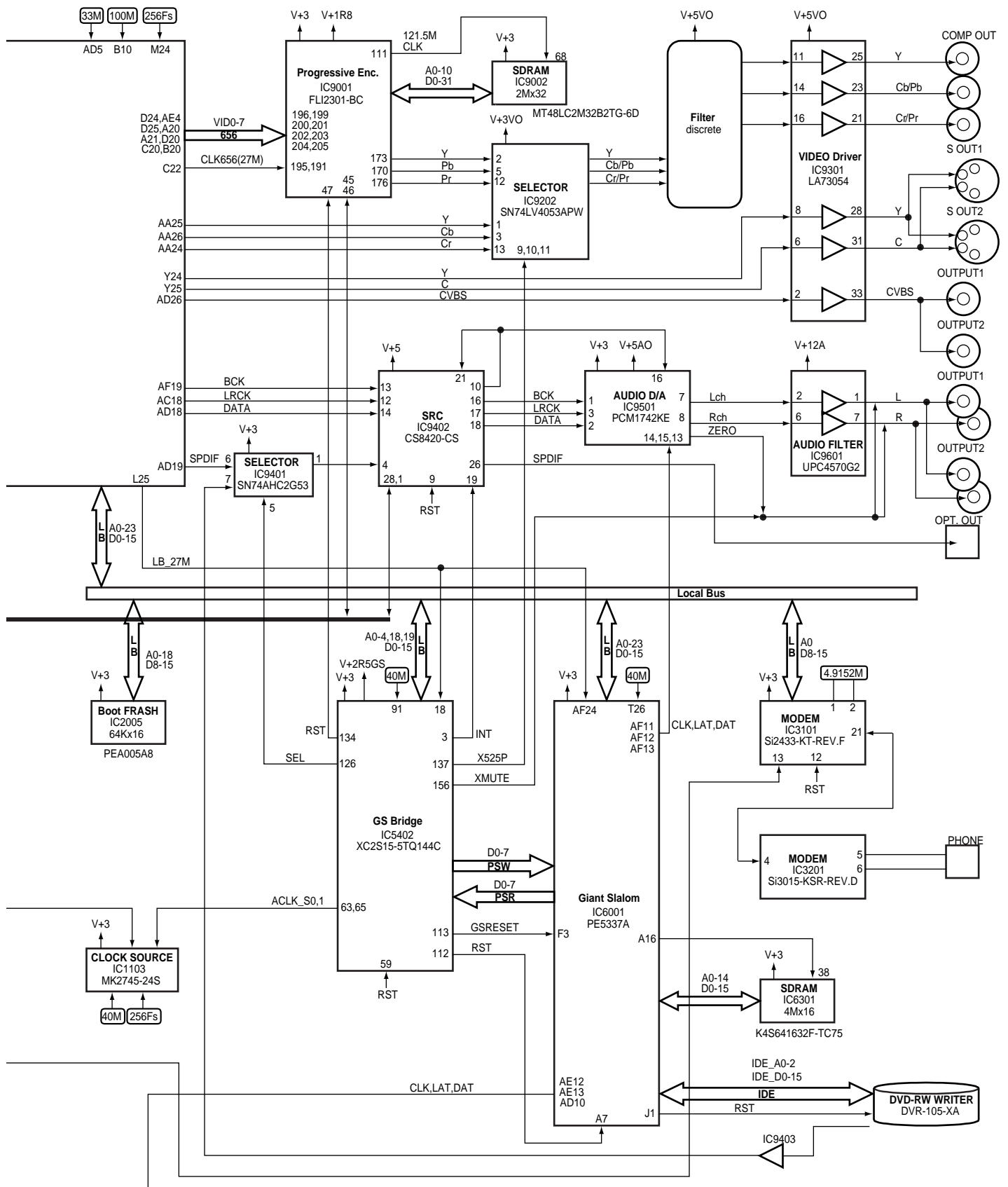
| Mark | No. | Symbol and Description | DVR-810H-S/KU | DVR-57H/KU |
|------|-----|------------------------|---------------|------------|
| | 4 | Front Panel | VNK5346 | VNK5351 |
| | 5 | Pioneer Badge | VAM1124 | PAN1376 |
| | 6 | Play Key | VNK5347 | VNK5353 |
| | 8 | Main Key | VNK5345 | VNK5352 |
| | 16 | FL Filter | VEC2365 | VEC2370 |
| | 17 | FL Lens | VEC2364 | VEC2369 |

3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

3.1 SYSTEM BLOCK DIAGRAM SECTION

A MAIN ASSY





3.2 POWER SUPPLY SECTION

A

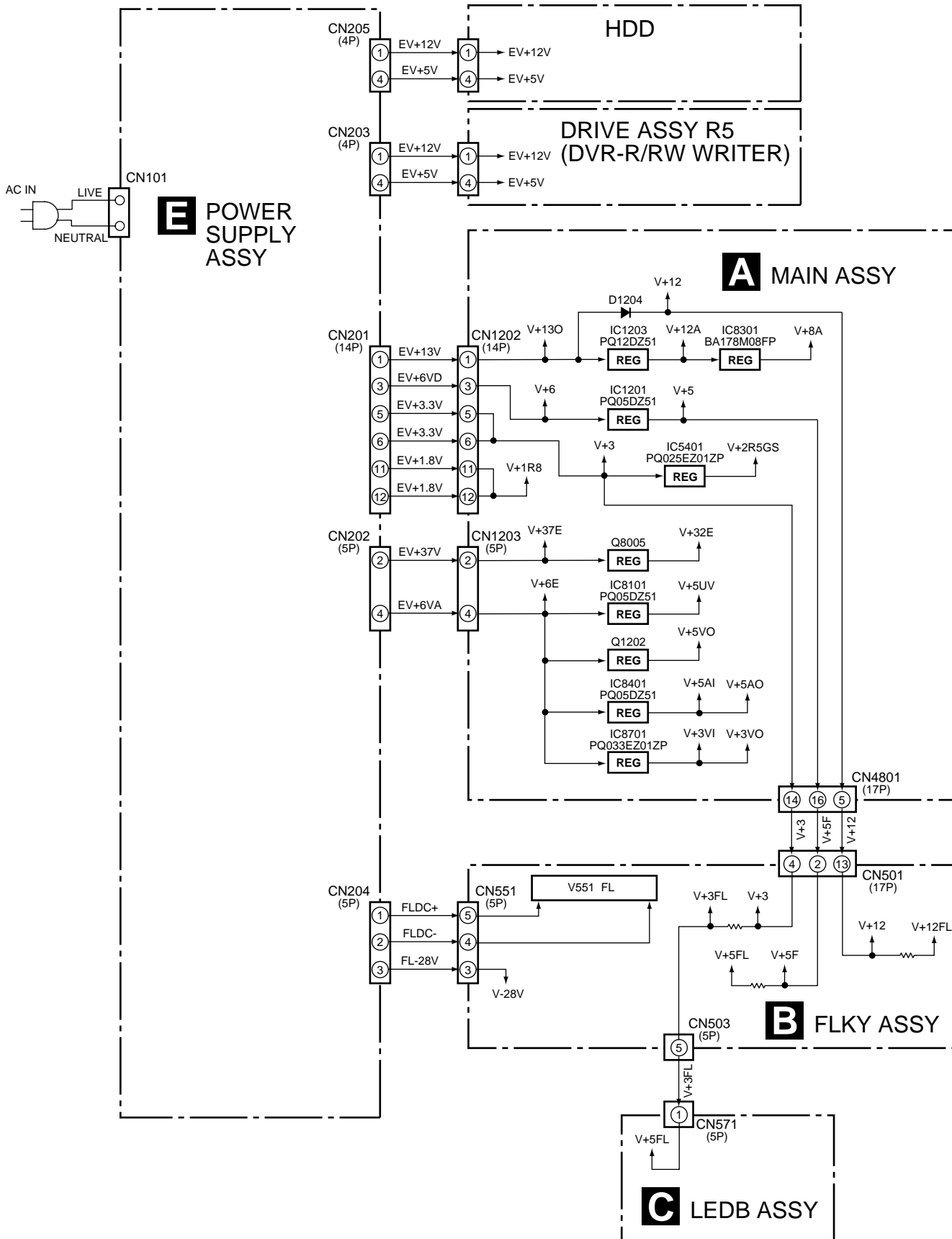
B

C

D

E

F





5



6



7



8



A



B



C



D



E



F



5



6

DVR-810H-S



7

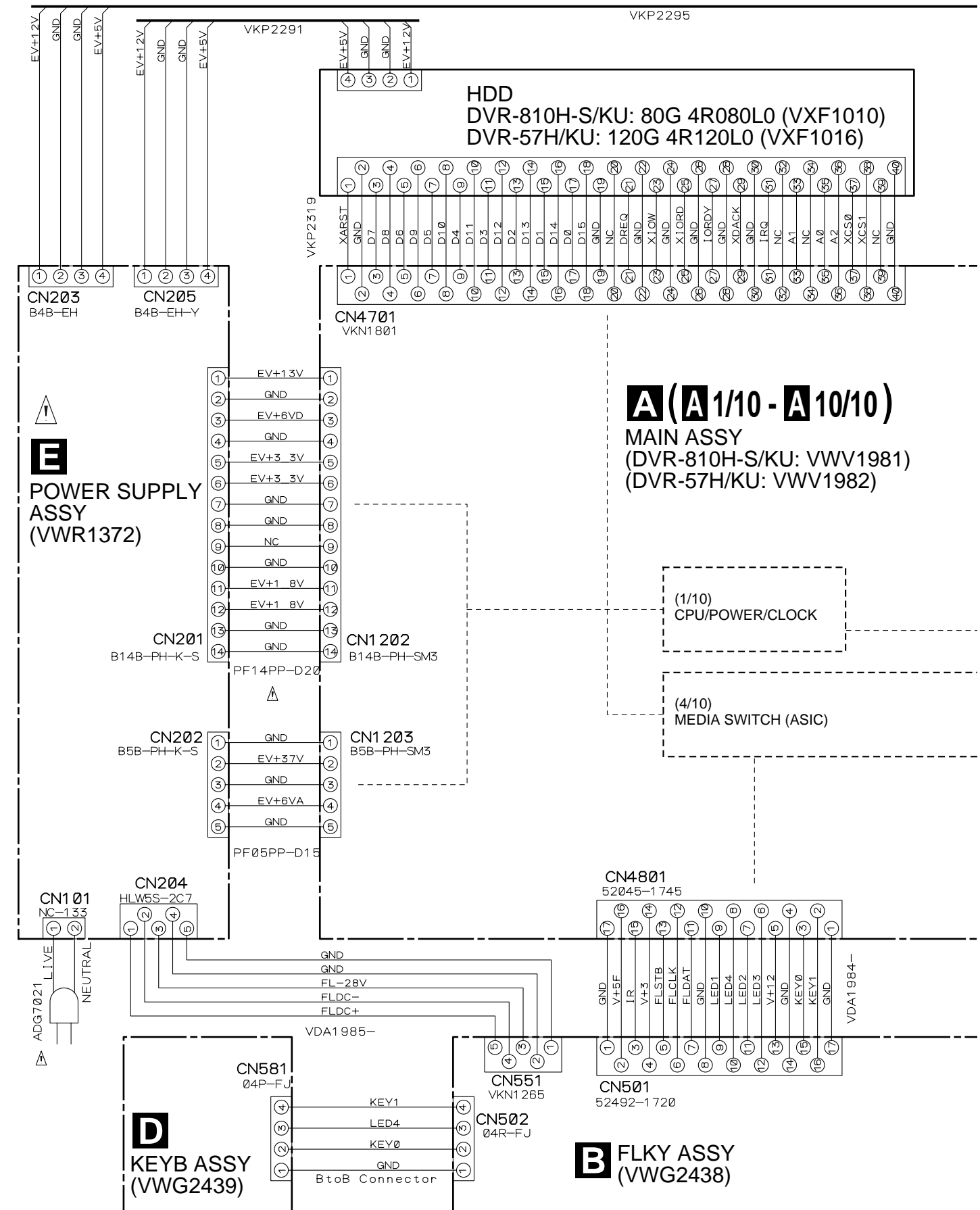


8

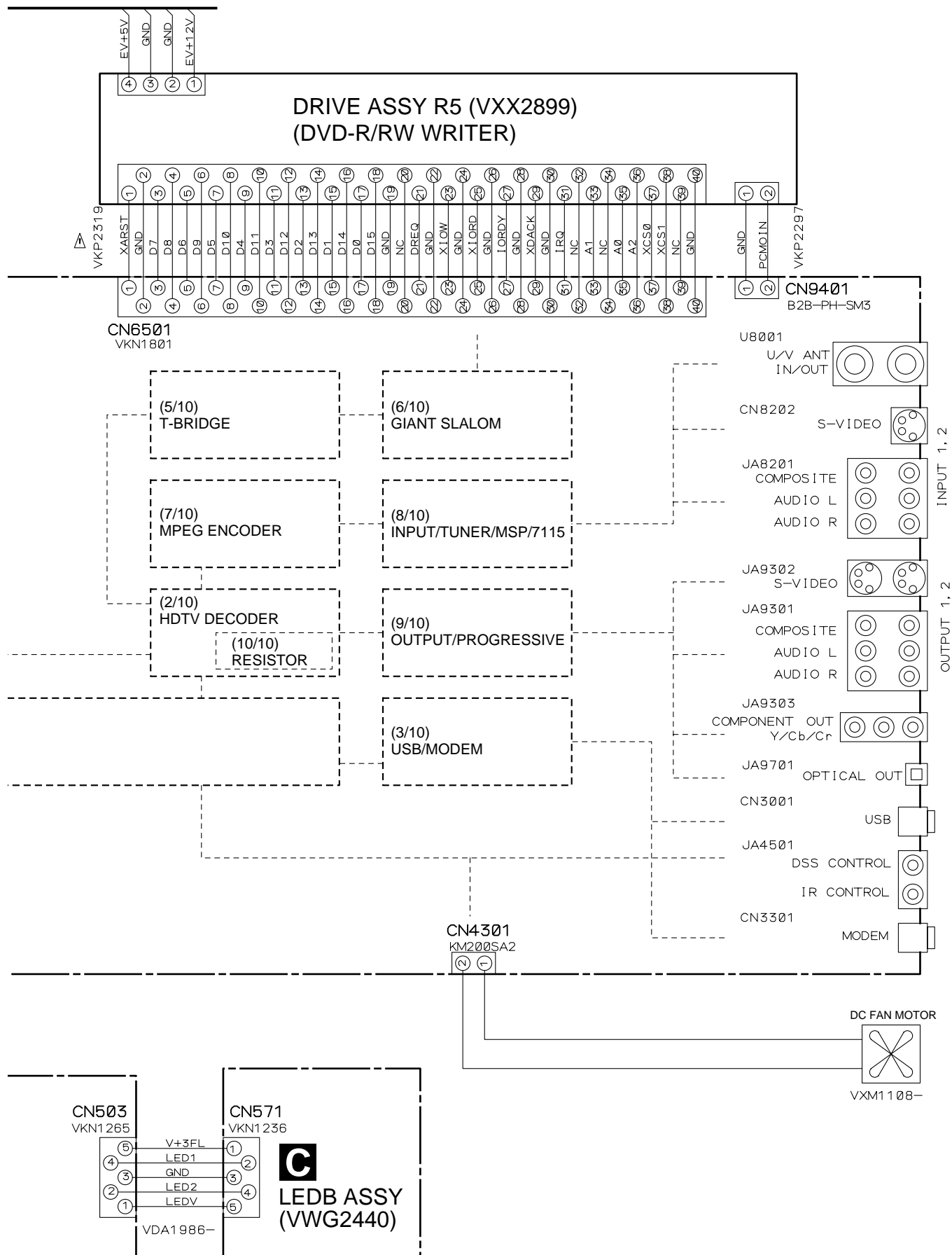
17



3.3 OVERALL WIRING DIAGRAM



Note : When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".



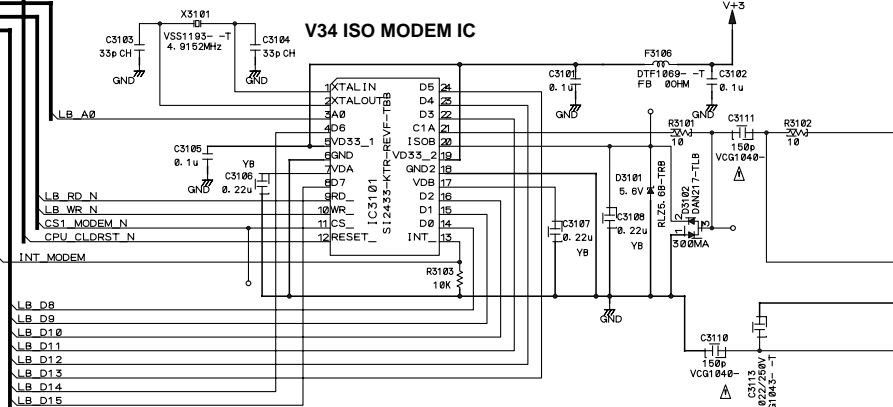
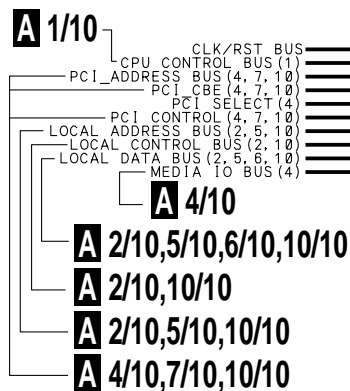
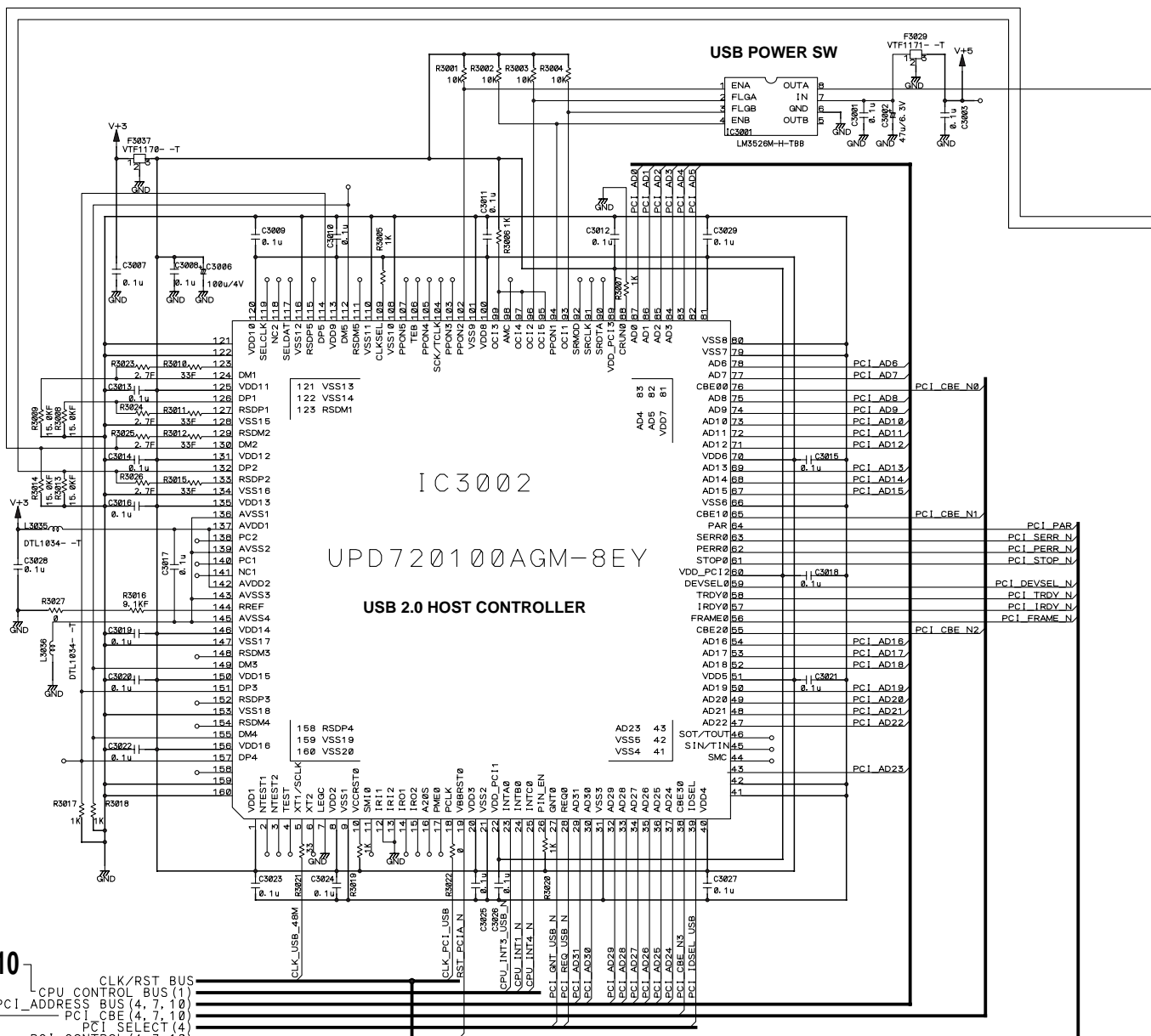
A 2/10 MAIN ASSY
(DVR-810H-S/KU: VWV1981)
(DVR-57H/KU: VWV1982)

SW_RS



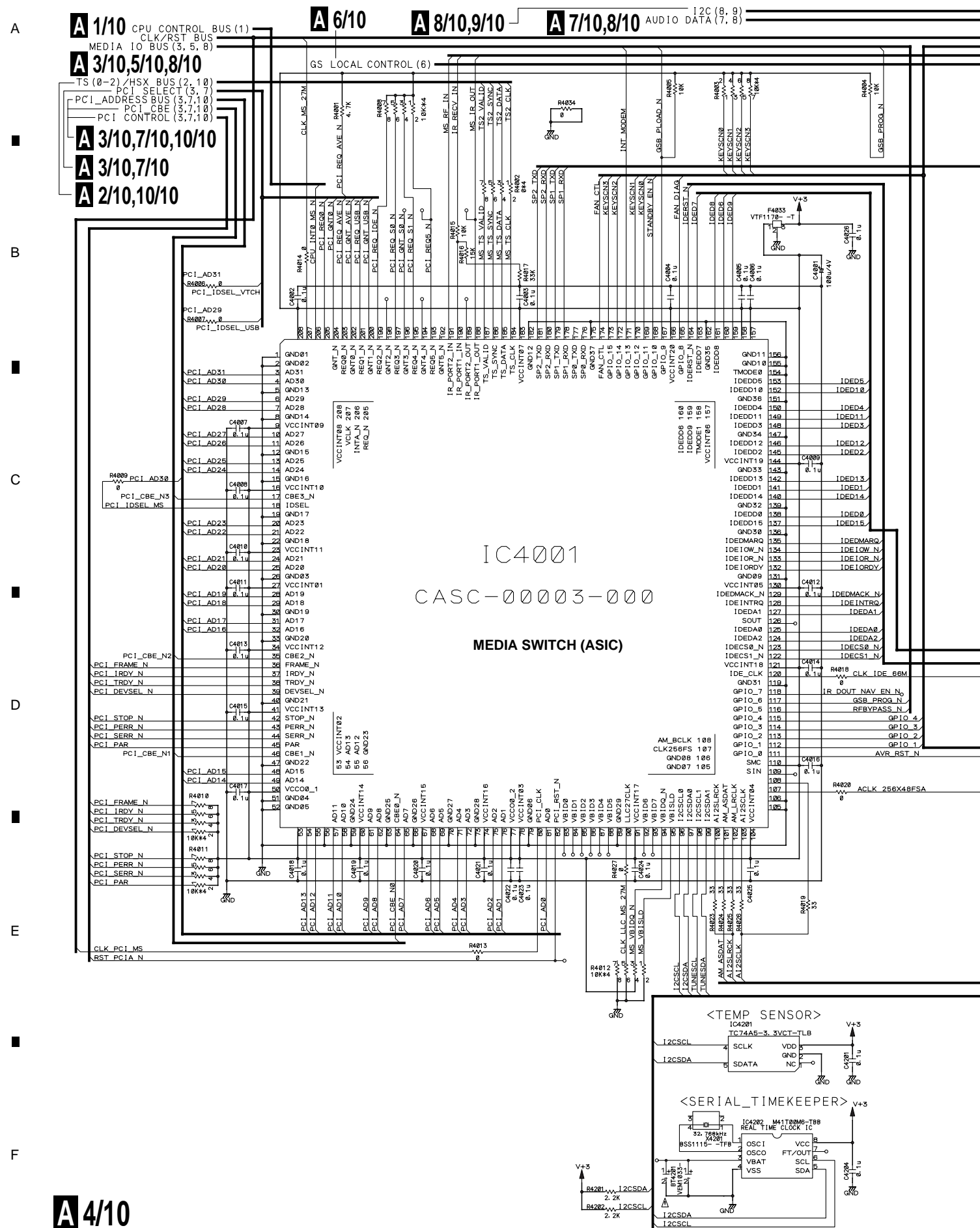


3.6 MAIN ASSY (3/10)



<MODEM BLOCK>

A 4/10



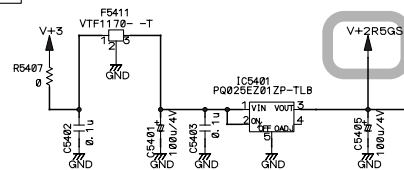
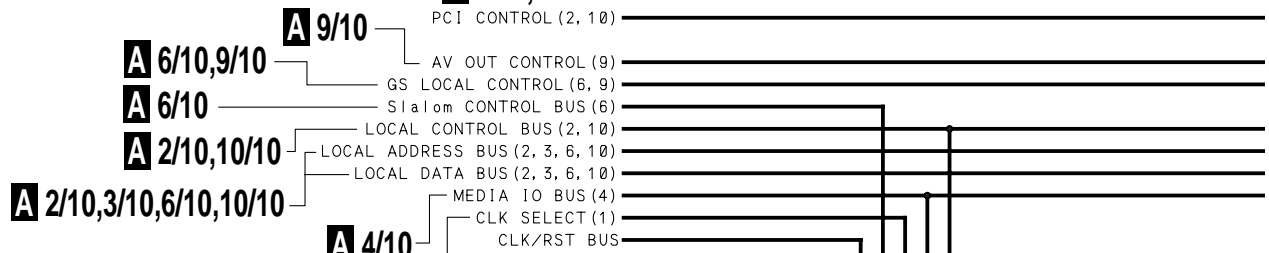


To HDD


3.8 MAIN ASSY (5/10)

A 5/10 MAIN ASSY
(DVR-810H-S/KU: VWV1981)
(DVR-57H/KU: VWV1982)
• T-BRIDGE BLOCK

A 2/10,10/10



REGULATOR

 : The power supply is shown with the marked box.

STUFF PARALLEL
CCLK

R5401
0

CS4_GSB0_N

CS4_GSB1_N

CPU_CDRST_N

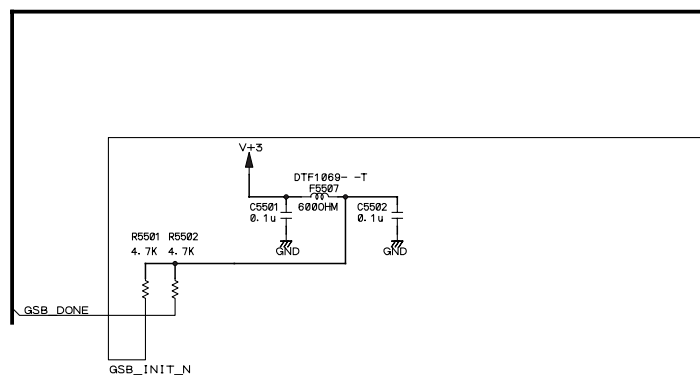
ACLK_S0

ACLK_S1

PSW_REQ_N

GSB_PROG_N

GSB_DONE

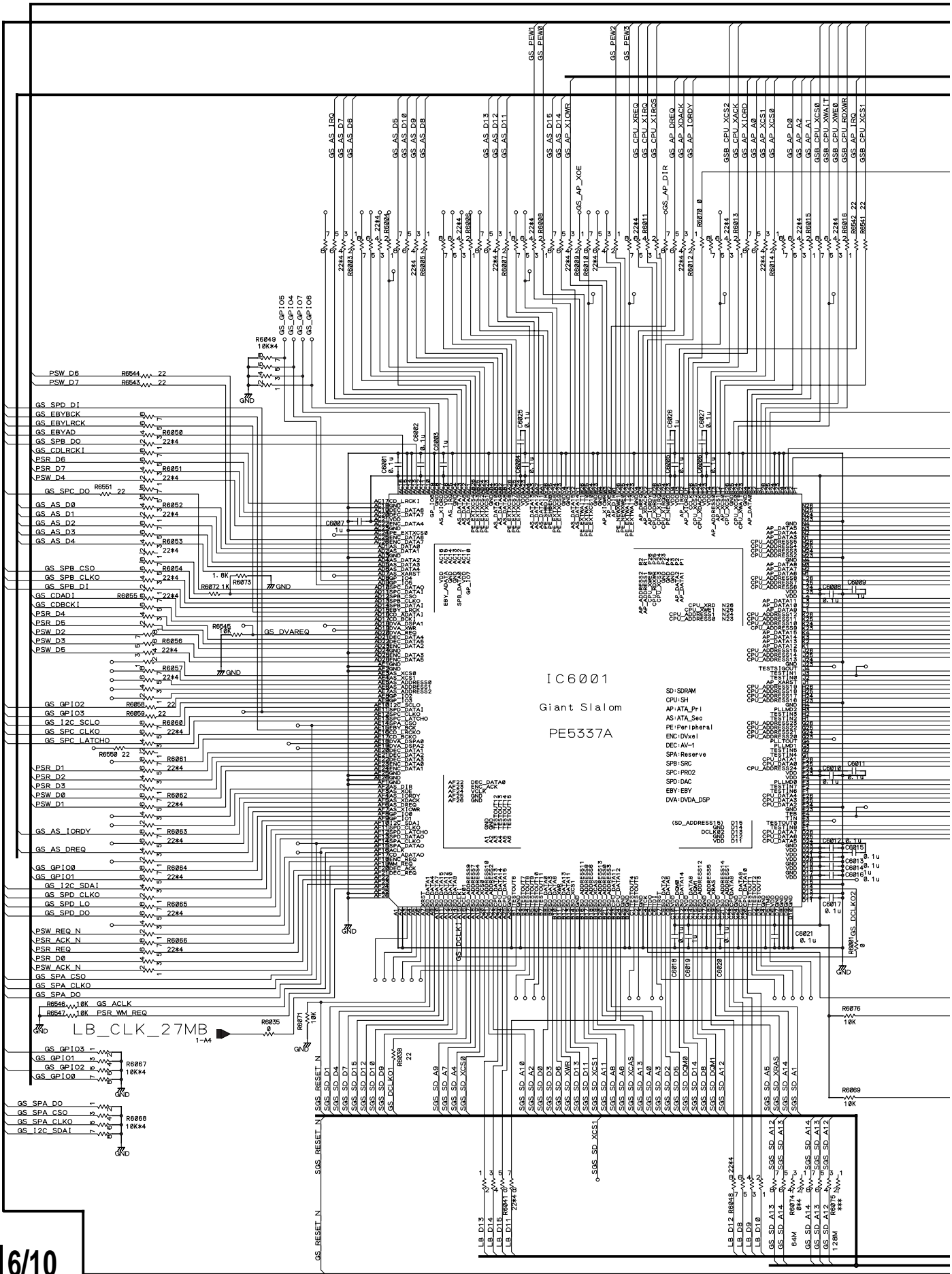


A 5/10



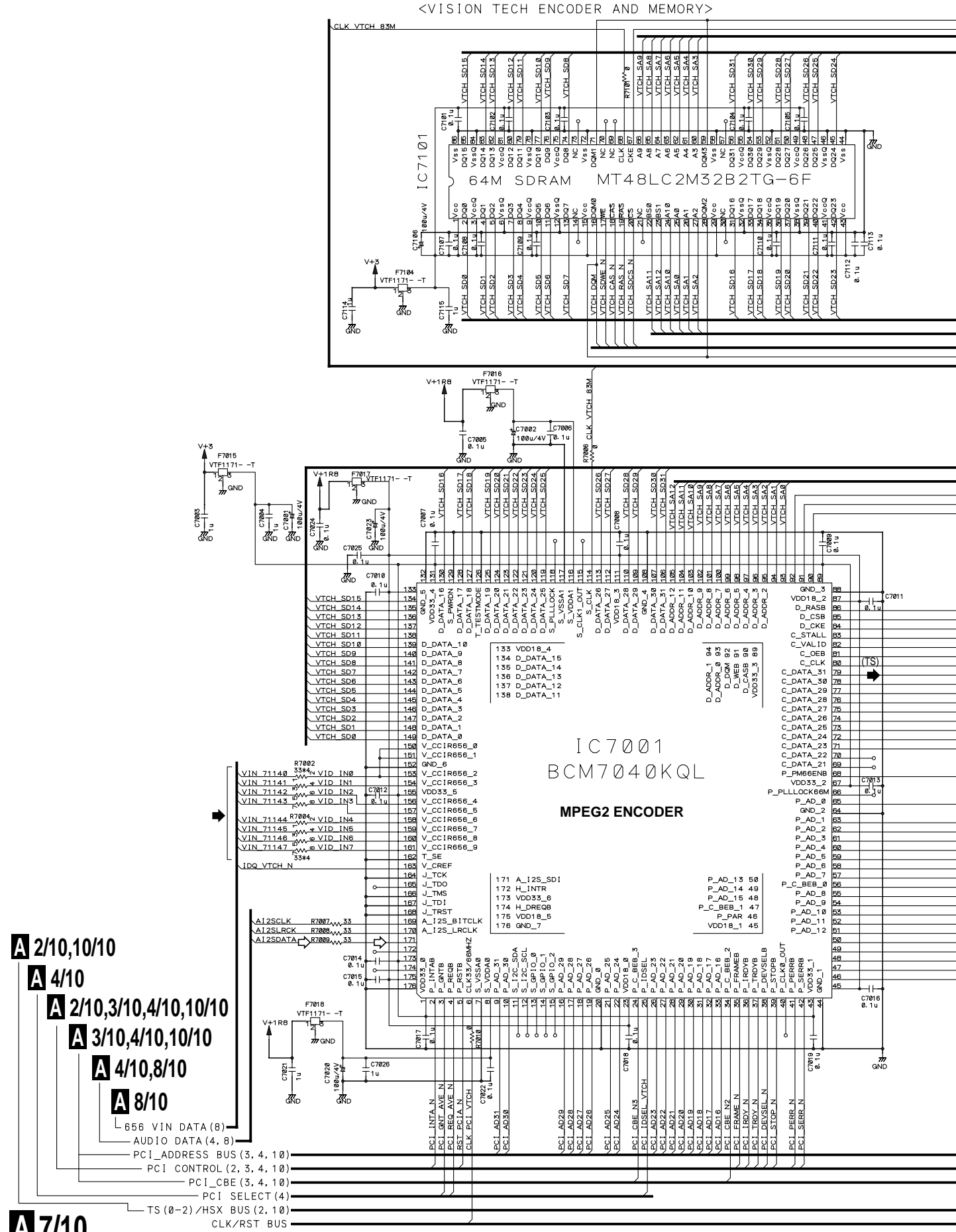
3.9 MAIN ASSY (6/10)

A
B
C
D
E
F



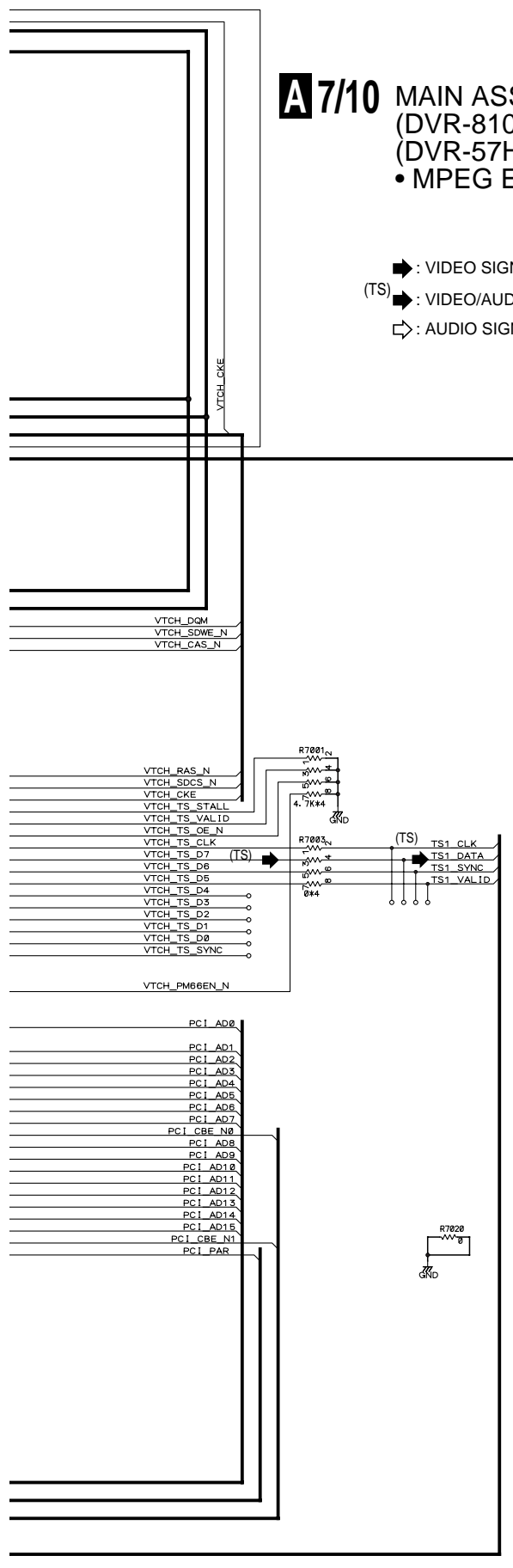


3.10 MAIN ASSY (7/10)

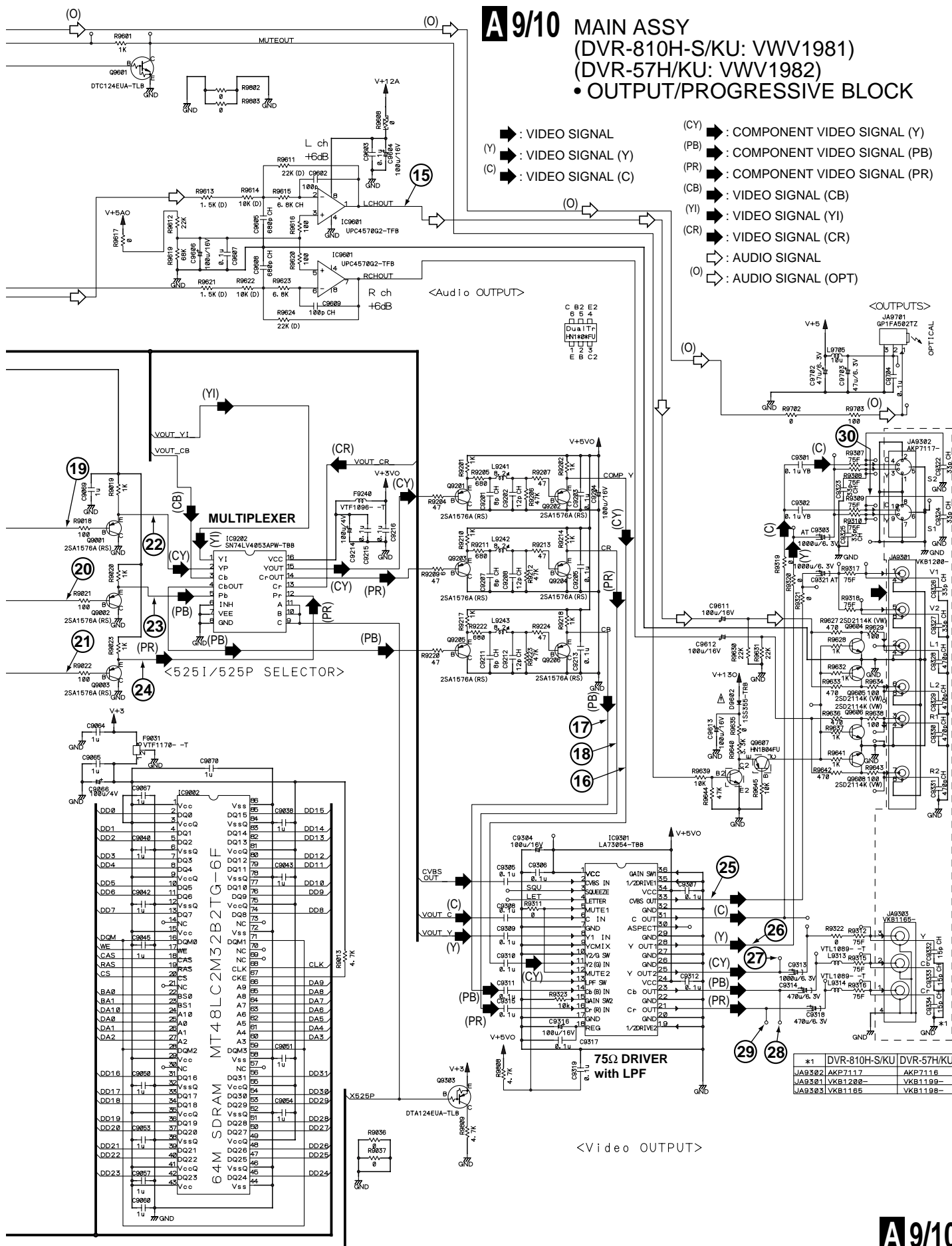


A 7/10 MAIN ASSY
(DVR-810H-S/KU: VWV1981)
(DVR-57H/KU: VWV1982)
• MPEG ENCODER BLOCK

➡: VIDEO SIGNAL
 (TS) ➡: VIDEO/AUDIO SIGNAL (TS)
 ⇨: AUDIO SIGNAL







3.13 MAIN ASSY (10/10)

A 10/10

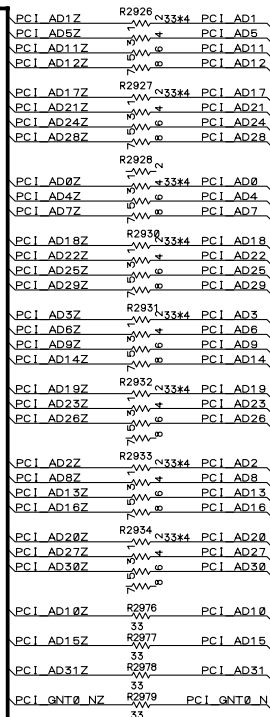
MAIN ASSY
(DVR-810H-S/KU: VWV1981)
(DVR-57H/KU: VWV1982)
• RESISTOR BLOCK

A 2/10

PCI_ADDRESSZ BUS (2)

A 3/10,4/10,7/10

PCI_ADDRESS BUS (3, 4, 7)

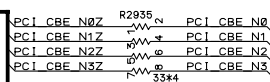


A 2/10

PCI_CBEZ (2)

A 3/10,4/10,7/10

PCI_CBE (3, 4, 7)



A 2/10

PCI_CONTROL (2)

A 2/10,3/10,4/10,5/10,7/10

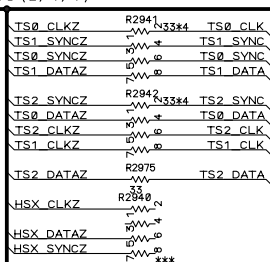
PCI_CONTROL (2, 3, 4, 5, 7)



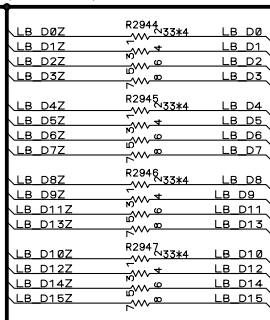
A 10/10

A 2/10,4/10,7/10

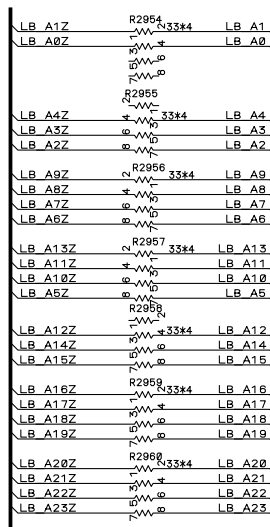
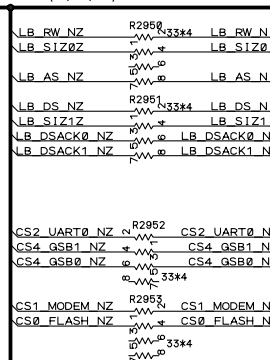
TS (0-2) /HSX BUS (2, 4, 7)

**A** 2/10,3/10,5/10,6/10

LOCAL DATA BUS (2, 3, 5, 6)

**A** 2/10,3/10,5/10

LOCAL CONTROL BUS (2, 3, 5)



LOCAL ADDRESS BUS (2, 3, 5, 6)

A 2/10,3/10,5/10,6/10**A** 2/10

CPU_ADDRESSZ BUS (2)

A 1/10

CPU_ADDRESS BUS (1)

A 2/10

CPU_CONTROLZ BUS (2)

A 1/10

CPU_CONTROL BUS (1)

A 2/10

CPU_COMMAND BUS (2)

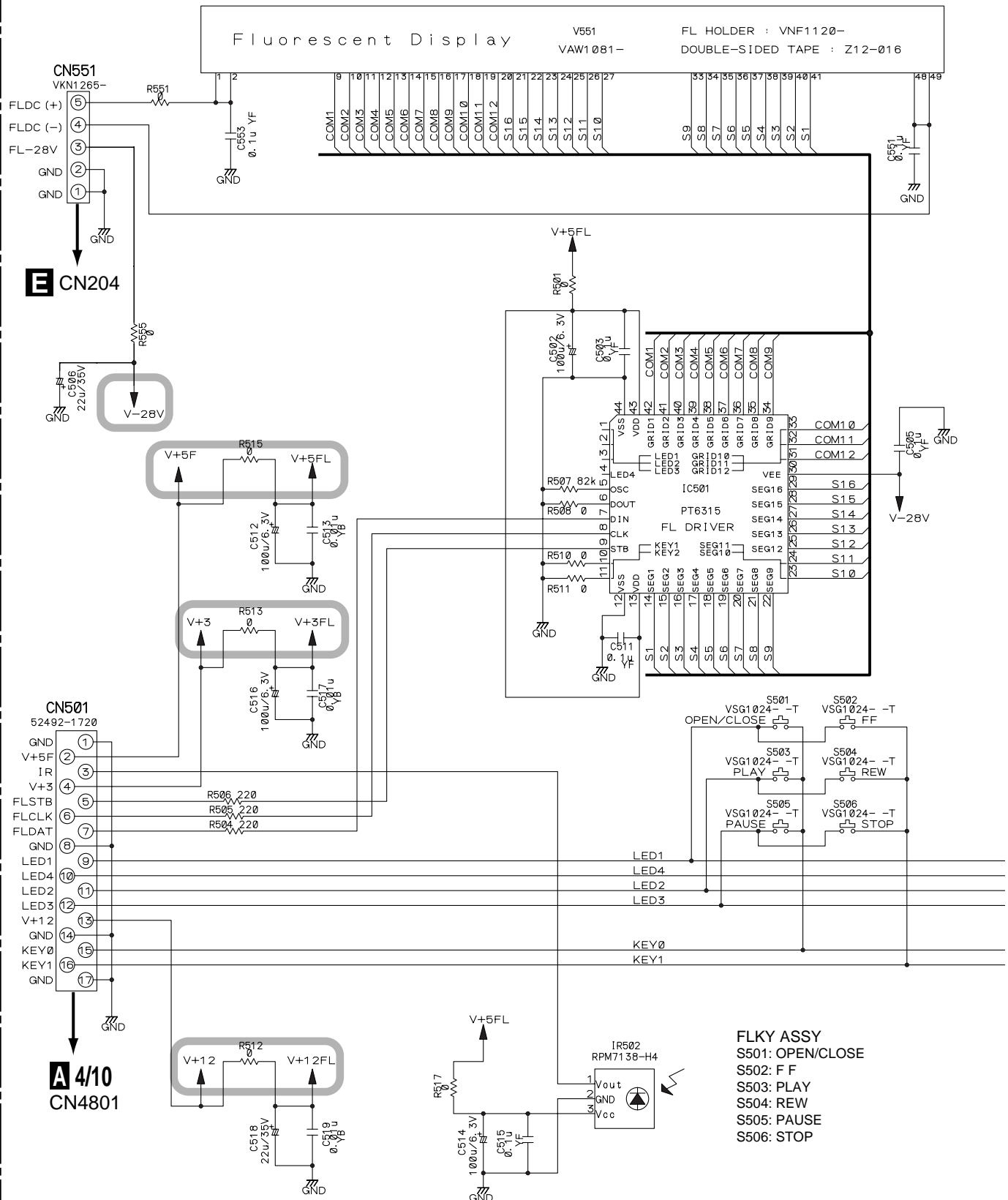
A 1/10

CPU_COMMAND BUS (1)

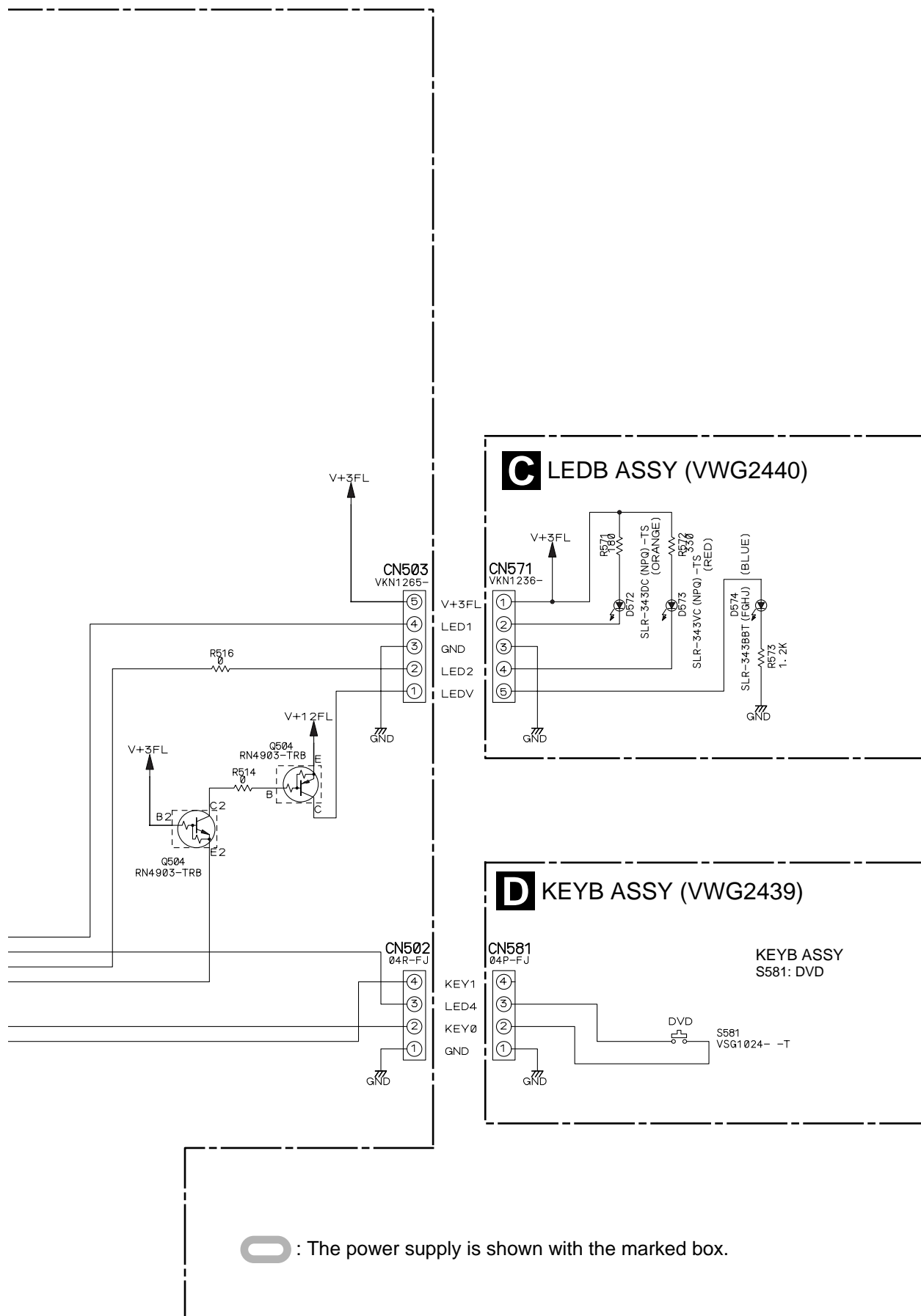
CLK/RST BUS

3.14 FLKY, LEDB and KEYB ASSY

B FLKY ASSY (VWG2438)



FLKY ASSY
S501: OPEN/CLOSE
S502: FF
S503: PLAY
S504: REW
S505: PAUSE
S506: STOP



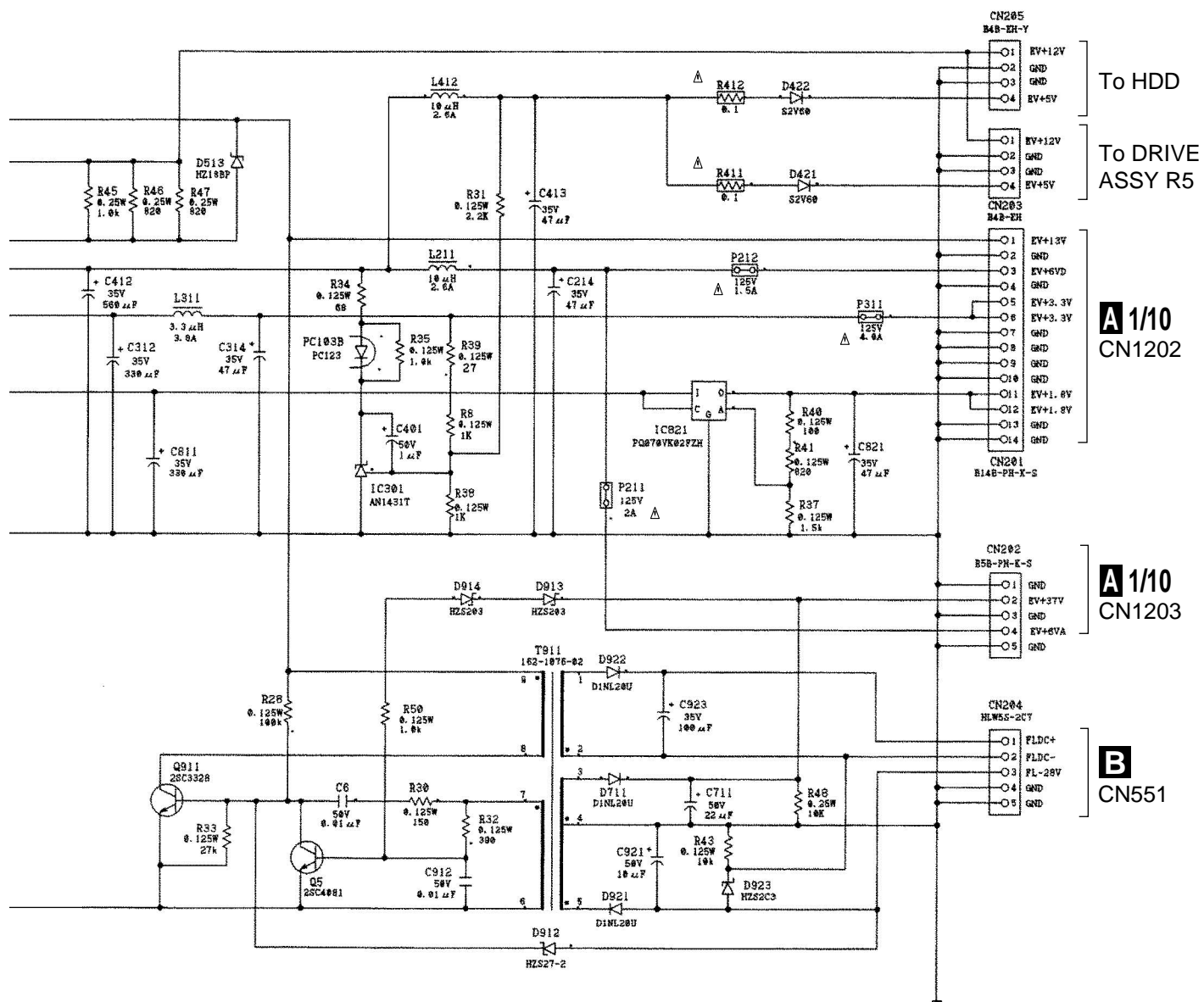
A

B



D

E



CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE,
REPLACE ONLY WITH SAME TYPE NO. 20N4000, MFD BY SKYGATE FOR P311.

CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE,
REPLACE WITH SAME TYPE AND RATINGS ONLY FOR P211 AND P212.

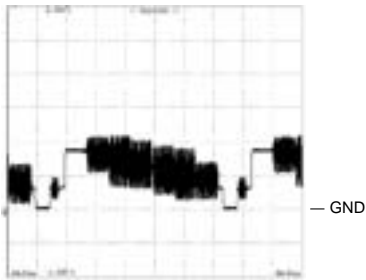
3.16 WAVEFORMS

WAVEFORMS

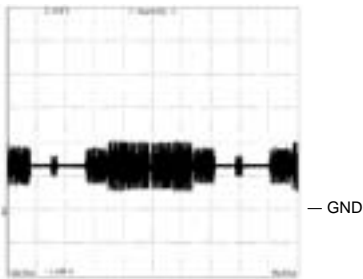
Input signal: 75/0/75/0 color-bar signal
Audio signal: 1kHz

A2/10 MAIN ASSY

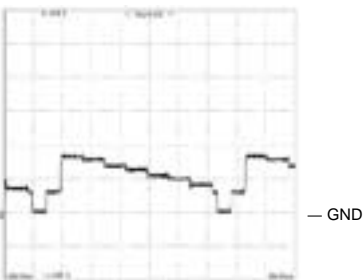
- ① Foot of R2045 (CVBS OUT)
V: 500mV/div. H: 10 μ S/div.



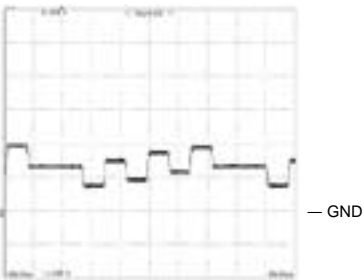
- ② Foot of R2047 (VOUT C)
V: 500mV/div. H: 10 μ S/div.



- ③ Foot of R2049 (VOUT Y)
V: 500mV/div. H: 10 μ S/div.

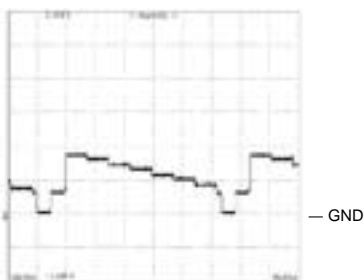


- ④ Foot of R2051 (VOUT CB)
V: 500mV/div. H: 10 μ S/div.

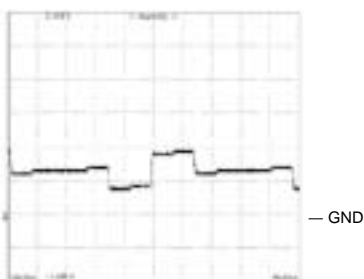


A2/10 MAIN ASSY

- ⑤ Foot of R2053 (VOUT YI)
V: 500mV/div. H: 10 μ S/div.

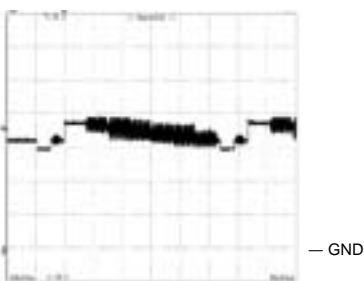


- ⑥ Foot of R2055 (VOUT CR)
V: 500mV/div. H: 10 μ S/div.

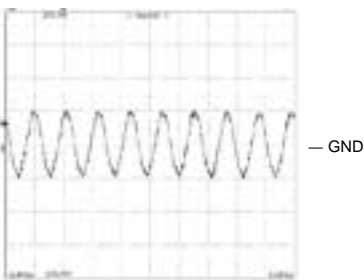


A8/10 MAIN ASSY

- ⑦ Foot of R8043 (CVBS)
V: 1V/div. H: 10 μ S/div.

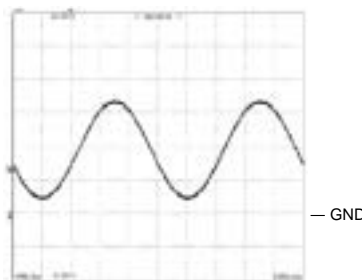


- ⑧ Foot of R8005 (SIF OUT)
V: 50mV/div. H: 200nS/div.

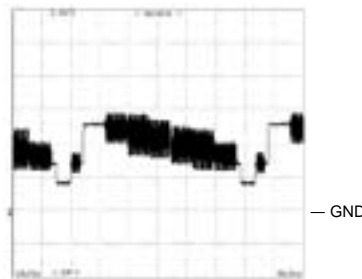


A8/10 MAIN ASSY

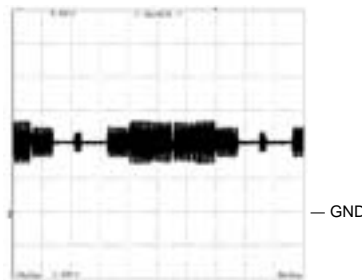
- ⑨ IC8501 - pin 44 (AIN2_L)
V: 2V/div. H: 200 μ S/div.



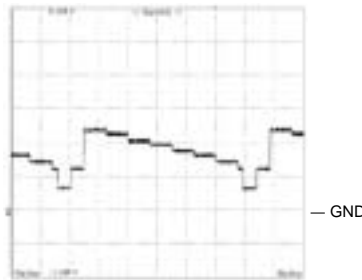
- ⑩ IC8801 - pin 12 (CV IN2)
V: 500mV/div. H: 10 μ S/div.



- ⑪ IC8801 - pin 14 (SVC IN)
V: 500mV/div. H: 10 μ S/div.

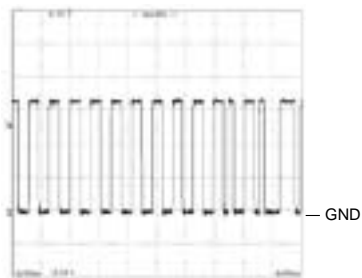


- ⑫ IC8801 - pin 18 (SVY IN)
V: 500mV/div. H: 10 μ S/div.

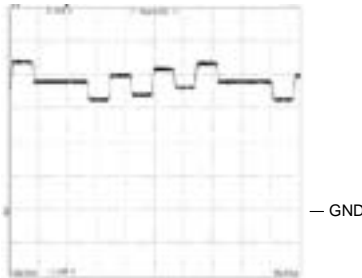


A9/10 MAIN ASSY

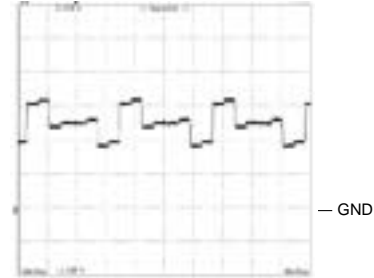
13 CN9401 - pin 2 (PCMOIN)
V: 1V/div. H: 1 μ S/div.



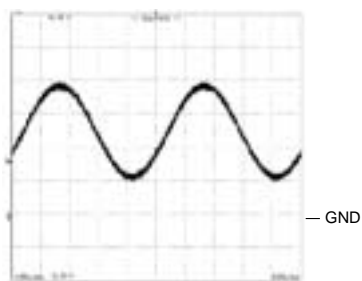
17 Q9206 - emitter (PB)
V: 500mV/div. H: 10 μ S/div.



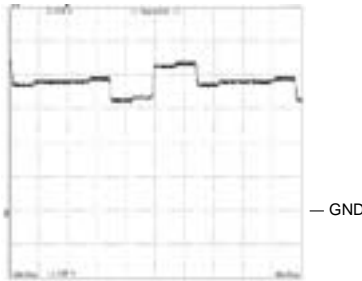
21 IC9001 - pin 176 (PR)
V: 500mV/div. H: 10 μ S/div.



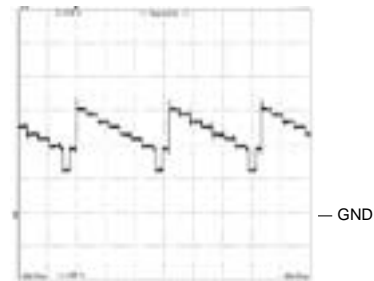
14 IC9501 - pin 7 (VOUT L)
V: 1V/div. H: 200 μ S/div.



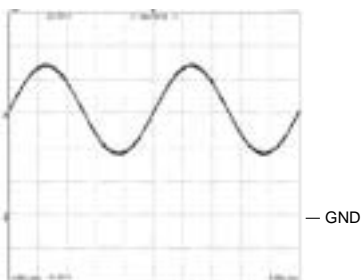
18 Q9204 - emitter (PR)
V: 500mV/div. H: 10 μ S/div.



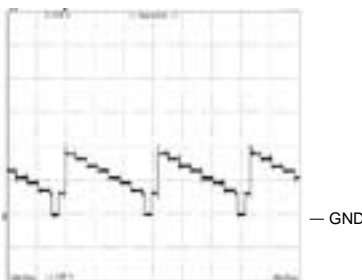
22 IC9202 - pin 2 (YP)
V: 500mV/div. H: 10 μ S/div.



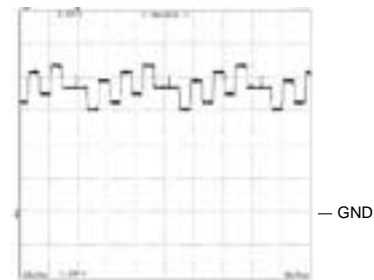
15 IC9601 - pin 1 (LCH OUT)
V: 2V/div. H: 200 μ S/div.



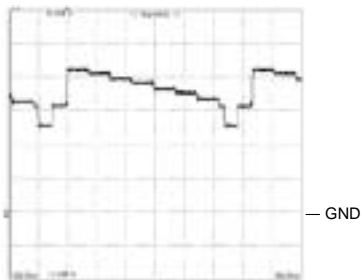
19 IC9001 - pin 173 (YP)
V: 500mV/div. H: 10 μ S/div.



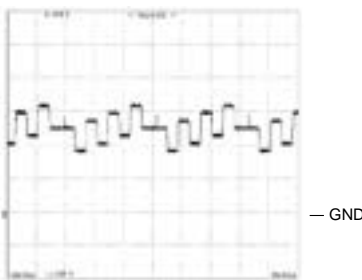
23 IC9202 - pin 5 (PB)
V: 500mV/div. H: 10 μ S/div.



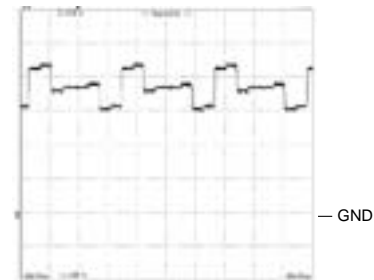
16 Q9202 - emitter (CY)
V: 500mV/div. H: 10 μ S/div.

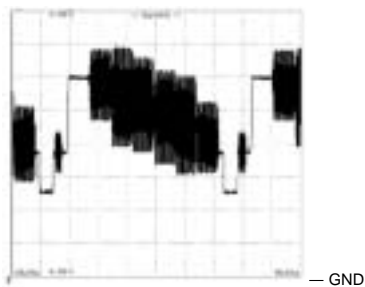
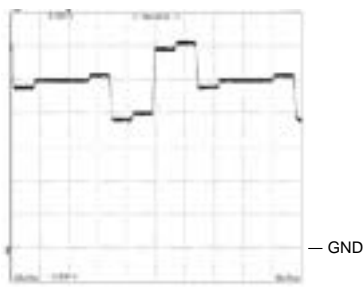
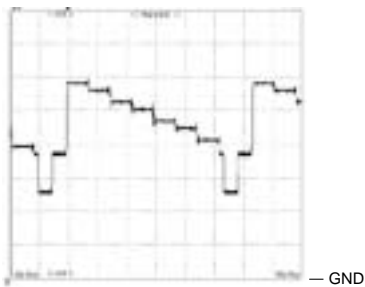
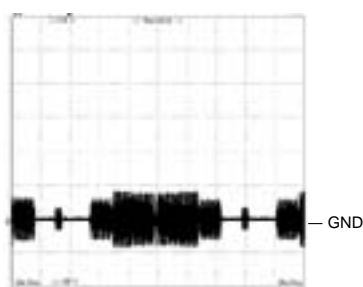
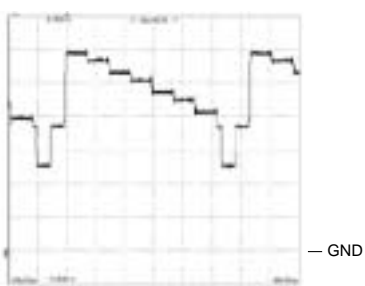
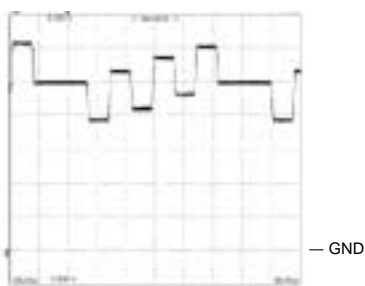


20 IC9001 - pin 170 (PB)
V: 500mV/div. H: 10 μ S/div.



24 IC9202 - pin 12 (PR)
V: 500mV/div. H: 10 μ S/div.



A 9/10 MAIN ASSY**25** IC9301 - pin 33 (CVBS OUT)
V: 500mV/div. H: 10 μ S/div.**29** IC9301 - pin 21 (PR OUT)
V: 500mV/div. H: 10 μ S/div.**26** IC9301 - pin 28 (Y OUT1)
V: 500mV/div. H: 10 μ S/div.**30** JA9302 - pin 10 (C OUT)
V: 500mV/div. H: 10 μ S/div.**27** IC9301 - pin 25 (Y OUT2)
V: 500mV/div. H: 10 μ S/div.**28** IC9301 - pin 23 (PB OUT)
V: 500mV/div. H: 10 μ S/div.



5



6



7



8



A



B



C



D



E



F



5



6

DVR-810H-S



7



8



3.17 VOLTAGES_1

VOLTAGES

• Input : Color-bar signal

A 1/10 MAIN ASSY

IC1001 (UPD30541GD167H)

| Pin | Voltage (V) |
|-----|-------------|
| 1 | 0 |
| 2 | 0 |
| 3 | 0.9 |
| 4 | 3.3 |
| 5 | 0.8 |
| 6 | 2.5 |
| 7 | 0.2-1 |
| 8 | 0 |
| 9 | 0 |
| 10 | 0.2-1 |
| 11 | 3.3 |
| 12 | 2.1 |
| 13 | 0 |
| 14 | 0.9 |
| 15 | 2.5 |
| 16 | 0.9 |
| 17 | 0 |
| 18 | 0.7 |
| 19 | 3.3 |
| 20 | 0 |
| 21 | 1.9 |
| 22 | 0 |
| 23 | 0.9 |
| 24 | 2.5 |
| 25 | 3.3 |
| 26 | 0 |
| 27 | 1 |
| 28 | 0 |
| 29 | 1 |
| 30 | 0 |
| 31 | 3.3 |
| 32 | 2.5 |
| 33 | 1.5 |
| 34 | 0 |
| 35 | 1.1 |
| 36 | 3.3 |
| 37 | 0 |
| 38 | 3.3 |
| 39 | 2.5 |
| 40 | 3.3 |
| 41 | 3.3 |
| 42 | 3.3 |
| 43 | 0 |
| 44 | 3.3 |
| 45 | 2.5 |
| 46 | 3.3 |
| 47 | 0 |
| 48 | 3.3 |
| 49 | 2.5 |
| 50 | 3.3 |
| 51 | 3.3 |
| 52 | 0 |
| 53 | 0 |
| 54 | 0 |
| 55 | 3.3 |
| 56 | 30m |
| 57 | 2.5 |
| 58 | - |
| 59 | 0 |
| 60 | 90m |
| 61 | 0 |
| 62 | 3.3 |
| 63 | 2.5 |
| 64 | 90m |
| 65 | 0 |
| 66 | 50m |
| 67 | 0 |
| 68 | 3.3 |
| 69 | - |
| 70 | 3.3 |
| 71 | 0 |
| 72 | 3.3 |
| 73 | 0 |
| 74 | 3.3 |
| 75 | 2.5 |
| 76 | 1.7 |
| 77 | 0 |
| 78 | 2.5 |
| 79 | 0.9 |
| 80 | 10m |
| 81 | 3.3 |
| 82 | 0 |
| 83 | 3.3 |
| 84 | 2.5 |
| 85 | 0 |
| 86 | 0 |
| 87 | 0 |
| 88 | 3.3 |
| 89 | 3.3 |
| 90 | 0 |

| Pin | Voltage (V) |
|-----|-------------|
| 91 | 3.3 |
| 92 | 2.5 |
| 93 | 0 |
| 94 | 3.3 |
| 95 | 3.3 |
| 96 | 0 |
| 97 | 2.5 |
| 98 | 3.3 |
| 99 | 0 |
| 100 | 3.3 |
| 101 | 3.3 |
| 102 | 2.5 |
| 103 | 0 |
| 104 | 0 |
| 105 | 0 |
| 106 | 0 |
| 107 | 30m |
| 108 | 0 |
| 109 | 1 |
| 110 | 3.3 |
| 111 | 1.5 |
| 112 | 2.5 |
| 113 | 1.5 |
| 114 | 0 |
| 115 | 1.5 |
| 116 | 3.3 |
| 117 | 0 |
| 118 | 2.5 |
| 119 | 0 |
| 120 | 1.7 |
| 121 | 3.3 |
| 122 | 1.7 |
| 123 | 0 |
| 124 | 1.2 |
| 125 | 2.5 |
| 126 | 3.3 |
| 127 | 0 |
| 128 | 0.7 |
| 129 | 0 |
| 130 | 3.3 |
| 131 | 2.5 |
| 132 | 0.6 |
| 133 | 0 |
| 134 | 0.2 |
| 135 | 0 |
| 136 | 0.2 |
| 137 | 3.3 |
| 138 | 0 |
| 139 | 2.5 |
| 140 | 0.3 |
| 141 | 0 |
| 142 | 3.3 |
| 143 | 3.3 |
| 144 | 0.3 |
| 145 | 0 |
| 146 | 3.3 |
| 147 | 2.5 |
| 148 | 40m |
| 149 | 3.3 |
| 150 | 0 |
| 151 | 0 |
| 152 | 0 |
| 153 | 2.5 |
| 154 | 0.12 |
| 155 | 0 |
| 156 | 3.3 |
| 157 | 0 |
| 158 | 0 |
| 159 | 2.5 |
| 160 | 0.1-1 |
| 161 | 0 |
| 162 | 3.3 |
| 163 | 0 |
| 164 | 0.15 |
| 165 | 2.5 |
| 166 | 0.2 |
| 167 | 0 |
| 168 | 3.3 |
| 169 | 3.3 |
| 170 | 0.3-1 |
| 171 | 2.5 |
| 172 | 0 |
| 173 | 3.3 |
| 174 | 0 |
| 175 | 2.2 |
| 176 | 3.3 |
| 177 | 30m |
| 178 | 2.5 |
| 179 | 3.3 |
| 180 | 0 |

| Pin | Voltage (V) |
|-----|-------------|
| 181 | 3.3 |
| 182 | 3.3 |
| 183 | 2.5 |
| 184 | 3.3 |
| 185 | 0 |
| 186 | 0 |
| 187 | 3.3 |
| 188 | 0.1-1.2 |
| 189 | 0 |
| 190 | 3.3 |
| 191 | 2.5 |
| 192 | 0 |
| 193 | 3.3 |
| 194 | 0-0.6 |
| 195 | 0 |
| 196 | 0.3 |
| 197 | 0 |
| 198 | 0.3 |
| 199 | 3.3 |
| 200 | 2.5 |
| 201 | 0.13 |
| 202 | 0 |
| 203 | 0.5 |
| 204 | 0 |
| 205 | 2.5 |
| 206 | 0.5 |
| 207 | 3.3 |
| 208 | 0 |

A 2/10 MAIN ASSY

IC2005 (PEA005A8)

| Pin | Voltage (V) |
|-----|-------------|
| 30 | 0 |
| 31 | 3.4 |
| 32 | 3.4 |
| 1 | 0 |
| 2 | 0 |
| 3 | 0 |
| 4 | 0 |
| 5 | 0 |
| 6 | 0 |
| 7 | 0 |
| 8 | 0 |
| 9 | 0 |
| 10 | 0 |
| 11 | 0 |
| 12 | 0 |
| 13 | 2.2 |
| 14 | 2.2 |
| 15 | 2.2 |
| 16 | 0 |
| 17 | 2.2 |
| 18 | 2.2 |
| 19 | 2.2 |
| 20 | 2.2 |
| 21 | 2.1 |
| 22 | 3.3 |
| 23 | 0 |
| 24 | 3.4 |
| 25 | 0 |
| 26 | 0 |
| 27 | 0 |
| 28 | 0 |
| 29 | 0 |

A 3/10 MAIN ASSY

IC3101 (SI2433-KTR-REVF)

| Pin | Voltage (V) |
|-----|-------------|
| 1 | 1.6 |
| 2 | 1.6 |
| 3 | 0 |
| 4 | 2.2 |
| 5 | 3.3 |
| 6 | 0 |
| 7 | 1.8 |
| 8 | 2.2 |
| 9 | 3.4 |
| 10 | 3.3 |
| 11 | 3.3 |
| 12 | 3.3 |
| 13 | 3.3 |
| 14 | 2.2 |
| 15 | 2.2 |
| 16 | 2.2 |
| 17 | 1.8 |
| 18 | 0 |
| 19 | 3.3 |
| 20 | 4.7 |
| 21 | 1.7 |
| 22 | 2.2 |
| 23 | 2.2 |
| 24 | 2.2 |

A 3/10 MAIN ASSY

IC3201 (SI3015-KSR-REVD)

| Pin | Voltage (V) |
|-----|-------------|
| 1 | 0-0.13 |
| 2 | 0-0.13 |
| 3 | 0-0.13 |
| 4 | 0-0.13 |
| 5 | 0-0.13 |
| 6 | 0-0.13 |
| 7 | 0-0.13 |
| 8 | 0-0.13 |
| 9 | 0-0.13 |
| 10 | 0-0.13 |
| 11 | 0-0.13 |
| 12 | — |
| 13 | 0-0.13 |
| 14 | 0-0.13 |
| 15 | 0-0.13 |
| 16 | 0-0.13 |

A 3/10 MAIN ASSY

IC3002 (UPD720100AGM-8EY)

| Pin | Voltage (V) | Pin | Voltage (V) |
|-----|-------------|-----|-------------|
| 1 | 3.3 | 81 | 3.3 |
| 2 | 2m | 82 | 2.2 |
| 3 | 2m | 83 | 2.1 |
| 4 | 19m | 84 | 2 |
| 5 | 1.6 | 85 | 2.1 |
| 6 | 1.6 | 86 | 2.2 |
| 7 | 0 | 87 | 2.1 |
| 8 | 3.3 | 88 | 0 |
| 9 | 0 | 89 | 3.3 |
| 10 | 3.3 | 90 | 3.3 |
| 11 | — | 91 | 4m |
| 12 | 0 | 92 | 4m |
| 13 | 0 | 93 | 3.3 |
| 14 | 2.7m | 94 | 3.3 |
| 15 | 2.8m | 95 | 3.3 |
| 16 | 2.8m | 96 | 3.3 |
| 17 | 0 | 97 | 3.3 |
| 18 | 1.6 | 98 | 5m |
| 19 | 3.3 | 99 | 3.3 |
| 20 | 3.3 | 100 | 3.3 |
| 21 | 0 | 101 | 0 |
| 22 | 3.3 | 102 | 3.3 |
| 23 | 3.3 | 103 | 3.3 |
| 24 | 3.3 | 104 | 5m |
| 25 | 3.3 | 105 | 3.3 |
| 26 | 3.3 | 106 | 5m |
| 27 | 3.3 | 107 | 3.3 |
| 28 | 3m | 108 | 0 |
| 29 | 3.3 | 109 | 3.3 |
| 30 | 3.3 | 110 | 0 |
| 31 | 0 | 111 | — |
| 32 | 3.3 | 112 | 0 |
| 33 | 3.3 | 113 | 3.3 |
| 34 | 3.3 | 114 | 0 |
| 35 | 3.3 | 115 | — |
| 36 | 3.3 | 116 | 0 |
| 37 | 3.3 | 117 | — |
| 38 | 3.3 | 118 | — |
| 39 | 3.3 | 119 | — |
| 40 | 3.3 | 120 | 3.3 |
| 41 | 0 | 121 | 0 |
| 42 | 0 | 122 | 0 |
| 43 | 3.3 | 123 | 0 |
| 44 | 3m | 124 | 0 |
| 45 | 3m | 125 | 3.3 |
| 46 | 3m | 126 | 0 |
| 47 | 3.3 | 127 | 0 |
| 48 | 3.3 | 128 | 0 |
| 49 | 3.3 | 129 | 0 |
| 50 | 3.3 | 130 | 0 |
| 51 | 3.3 | 131 | 3.3 |
| 52 | 3.3 | 132 | 0 |
| 53 | 3.3 | 133 | 0 |
| 54 | 3.3 | 134 | 0 |
| 55 | 3.3 | 135 | 3.3 |
| 56 | 20m | 136 | 2m |
| 57 | 3.3 | 137 | 3.3 |
| 58 | 3.3 | 138 | 1.8 |
| 59 | 20m | 139 | 2m |
| 60 | 3.3 | 140 | 2 |
| 61 | 20m | 141 | — |
| 62 | 3.3 | 142 | 3.3 |
| 63 | 3.3 | 143 | 2m |
| 64 | 10m | 144 | 1.3 |
| 65 | 3.3 | 145 | 2m |
| 66 | 0 | 146 | 3.3 |
| 67 | 3.3 | 147 | 0 |
| 68 | 3.3 | 148 | — |
| 69 | 3.3 | 149 | 0 |
| 70 | 3.3 | 150 | 3.3 |
| 71 | 3.3 | 151 | 0 |
| 72 | 3.3 | 152 | — |
| 73 | 3.3 | 153 | 0 |
| 74 | 3.3 | 154 | — |
| 75 | 3.3 | 155 | 0 |
| 76 | 3.3 | 156 | 3.3 |
| 77 | 3.3 | 157 | 0 |
| 78 | 3.3 | 158 | — |
| 79 | 0 | 159 | 0 |
| 80 | 0 | 160 | 0 |

A 2/10 MAIN ASSY

• Input : Color-bar signal

IC2101 (BCM7020RKPBI-D0)

| Pin | Voltage (V) |
|-----|-------------|
| A1 | V |
| A2 | G |
| A3 | V |
| A4 | 1.4 |
| A5 | 1.6-1.8 |
| B1 | G |
| B2 | G |
| B3 | - |
| B4 | 1.4 |
| B5 | 1.4 |
| C1 | V |
| C2 | 1.4 |
| C3 | 2.3-2.5 |
| C4 | 1.4 |
| C5 | 1.4 |
| D1 | 3.3 |
| D2 | 3.3 |
| D3 | 1.4 |
| D4 | 0 |
| D5 | 1.4 |
| E1 | 2.8 |
| E2 | 1.8 |
| E3 | 2.9 |
| E4 | - |
| E5 | 1.8 |
| F1 | 0.24 |
| F2 | 0.28 |
| F3 | 0.15 |
| F4 | 0.34 |
| F5 | G |
| G1 | 0.38-0.41 |
| G2 | 0.37-0.41 |
| G3 | 0.32-0.38 |
| G4 | 0.34-0.4 |
| G5 | V |
| H1 | 0.32-0.38 |
| H2 | 0.25 |
| H3 | 0.35-0.38 |
| H4 | 2.8 |
| H5 | G |
| J1 | 0.34-0.4 |
| J2 | 0.32-0.38 |
| J3 | 0.28-0.33 |
| J4 | 0.69 |
| J5 | V |
| K1 | 1.8 |
| K2 | 0.38-0.42 |
| K3 | 2.8 |
| K4 | 0.38-0.42 |
| K5 | G |
| L1 | 0.33-0.43 |
| L2 | 1.3 |
| L3 | 0.29 |
| L4 | 0.23 |
| L5 | V |
| M1 | 2.8 |
| M2 | 0.37 |
| M3 | 0.26 |
| M4 | 0.37 |
| M5 | G |
| N1 | 0.36 |
| N2 | 1.03 |
| N3 | 0.33 |
| N4 | 0.26 |
| N5 | V |
| P1 | 0.16 |
| P2 | 0.14 |
| P3 | 0.32 |
| P4 | 0.3 |
| P5 | G |
| R1 | 1.8 |
| R2 | 2.7 |
| R3 | 0.38 |
| R4 | 0.24 |
| R5 | V |
| T1 | 0.26 |
| T2 | 0.2 |
| T3 | 0.38 |
| T4 | 0.43 |
| T5 | G |
| U1 | 0.32 |
| U2 | 0.42 |
| U3 | 2.7 |
| U4 | 0.38 |
| U5 | V |
| V1 | 0.25 |
| V2 | 0.39 |
| V3 | 1.2 |
| V4 | 0.37 |
| V5 | G |

| Pin | Voltage (V) |
|------|-------------|
| W1 | 0.39 |
| W2 | 0.33 |
| W3 | 0.43 |
| W4 | 2.8 |
| W5 | V |
| Y1 | 0.29 |
| Y2 | 1.8 |
| Y3 | 0.26 |
| Y4 | 0.26 |
| Y5 | G |
| AA1 | 1.3 |
| AA2 | 0.39 |
| AA3 | 0.37 |
| AA4 | 0.37 |
| AA5 | V |
| AB1 | 0.37-0.42 |
| AB2 | 0.35-0.75 |
| AB3 | 0.35-0.53 |
| AB4 | 0.98 |
| AB5 | G |
| AB6 | V |
| AB7 | G |
| AB8 | V |
| AB9 | G |
| AB10 | V |
| AB11 | G |
| AB12 | V |
| AB13 | G |
| AB14 | V |
| AB15 | G |
| AB16 | G |
| AB17 | V |
| AB18 | - |
| AB19 | G |
| AB20 | V |
| AB21 | G |
| AC1 | 2.8 |
| AC2 | 0.23-0.27 |
| AC3 | 0.32-0.37 |
| AC4 | 0.29 |
| AC5 | 3.3 |
| AC6 | - |
| AC7 | 2.3 |
| AC8 | 2.3 |
| AC9 | 2.2 |
| AC10 | 2.2 |
| AC11 | 2.2 |
| AC12 | 3.2 |
| AC13 | 3.2 |
| AC14 | 2.5 |
| AC15 | 2.2 |
| AC16 | V |
| AC17 | 2.3 |
| AC18 | 1.7 |
| AC19 | - |
| AC20 | 0.77 |
| AC21 | 3.3 |
| AD1 | G |
| AD2 | 0.36-0.42 |
| AD3 | 0.45 |
| AD4 | 3.3 |
| AD5 | 1.7 |
| AD6 | 3.3 |
| AD7 | V |
| AD8 | 2.2 |
| AD9 | 2.2 |
| AD10 | 2.2 |
| AD11 | 2.3 |
| AD12 | 3.3 |
| AD13 | 3.3 |
| AD14 | 2.2 |
| AD15 | 2.2 |
| AD16 | 2.2 |
| AD17 | 2.2 |
| AD18 | 0.55 |
| AD19 | 1.7 |
| AD20 | 0.66 |
| AD21 | 0 |
| AE1 | V |
| AE2 | G |
| AE3 | 3.3 |
| AE4 | 1.3 |
| AE5 | - |
| AE6 | 3.2 |
| AE7 | 2.2 |
| AE8 | 2.2 |
| AE9 | 2.3 |
| AE10 | 2.1 |
| AE11 | V |
| AE12 | 3.3 |

| Pin | Voltage (V) |
|------|-------------|
| AE13 | 2.2 |
| AE14 | 2.2 |
| AE15 | 2.2 |
| AE16 | 2.1 |
| AE17 | 2.1 |
| AE18 | 2.1 |
| AE19 | - |
| AE20 | G |
| AE21 | 3.3 |
| AF1 | G |
| AF2 | G |
| AF3 | V |
| AF4 | 3.3 |
| AF5 | 3 |
| AF6 | 2.1 |
| AF7 | 2.1 |
| AF8 | 2.2 |
| AF9 | 2.1 |
| AF10 | 2.2 |
| AF11 | 3.2 |
| AF12 | 3.4 |
| AF13 | 3.2 |
| AF14 | 2.1 |
| AF15 | 2.1 |
| AF16 | 2.1 |
| AF17 | 2.1 |
| AF18 | 2 |
| AF19 | 1.7 |
| AF20 | - |
| AF21 | - |
| AF22 | - |
| AF23 | - |
| AF24 | 1.7 |
| AF25 | V |
| AF26 | V |
| AE22 | 0 |
| AE23 | 0 |
| AE24 | 0 |
| AE25 | G |
| AE26 | G |
| AD22 | 0 |
| AD23 | 1.4 |
| AD24 | 0 |
| AD25 | 2.1 |
| AD26 | 0.5 |
| AC22 | 0 |
| AC23 | 0 |
| AC24 | 2.2 |
| AC25 | 2.2 |
| AC26 | 2.2 |
| AB22 | G |
| AB23 | 2.2 |
| AB24 | 2.2 |
| AB25 | 2.2 |
| AB26 | 1.4 |
| AA22 | V |
| AA23 | 0 |
| AA24 | 0.67 |
| AA25 | 0.48 |
| AA26 | 0.67 |
| Y22 | V(1.8) |
| Y23 | 0 |
| Y24 | 0.5 |
| Y25 | 0.67 |
| Y26 | G |
| W22 | V |
| W23 | 3.3 |
| W24 | 3.3 |
| W25 | 2.2 |
| W26 | 0 |
| V22 | V |
| V23 | 0 |
| V24 | 0 |
| V25 | 0 |
| V26 | 0 |
| U22 | G |
| U23 | 0 |
| U24 | 0 |
| U25 | 0 |
| U26 | 0 |
| T22 | G |
| T23 | 0 |
| T24 | 0 |
| T25 | 0 |
| T26 | 0 |
| R22 | V |
| R23 | 0 |
| R24 | 0 |
| R25 | 0 |
| R26 | 0 |

| Pin | Voltage (V) |
|-----|-------------|
| P22 | V |
| P23 | V |
| P24 | 0 |
| P25 | G |
| P26 | G |
| N22 | V |
| N23 | V |
| N24 | G |
| N25 | 0.81 |
| N26 | 0 |
| M22 | 2.4 |
| M23 | V |
| M24 | 1.5 |
| M25 | G |
| M26 | - |
| L22 | 0 |
| L23 | 3.3 |
| L24 | 2.3 |
| L25 | 1.7 |
| L26 | 2.6 |
| K22 | 0 |
| K23 | 0 |
| K24 | 0 |
| K25 | 0 |
| K26 | 2.8 |
| J22 | V |
| J23 | 0 |
| J24 | 0 |
| J25 | 0 |
| J26 | 0 |
| H22 | V |
| H23 | 3.3 |
| H24 | 0 |
| H25 | 0 |
| H26 | 0 |
| G22 | V(3.3) |
| G23 | G |
| G24 | G |
| G25 | - |
| G26 | 3.3 |
| F22 | V |
| F23 | G |
| F24 | G |
| F25 | - |
| F26 | - |
| E26 | 3.3 |
| E25 | 3.3 |
| E24 | 0 |
| E23 | 0 |
| E22 | V |
| E21 | 3.3 |
| E20 | 3.3 |
| E19 | V |
| E18 | G |
| E17 | V |
| E16 | G |
| E15 | V |
| E14 | G |
| E13 | V |
| E12 | G |
| E11 | V |
| E10 | G |
| E9 | V |
| E8 | G |
| E7 | V |
| E6 | G |
| D26 | 3.3 |
| D25 | 1.7 |
| D24 | 1.3 |
| D23 | 1.7 |
| D22 | 3.3 |
| D21 | 0 |
| D20 | 0.99 |
| D19 | 3.3 |
| D18 | 1.2 |
| D17 | 0.8-1.6 |
| D16 | 3.3 |
| D15 | 2-2.7 |
| D14 | 0.3-0.7 |
| D13 | 0-0.6 |
| D12 | 0.3-0.6 |
| D11 | 0.1-0.2 |
| D10 | 0 |
| D9 | 0 |
| D8 | 0.9-1.7 |
| D7 | 2 |
| D6 | 1.3-1.4 |
| C26 | V |
| C25 | 3.32 |
| C24 | 0 |

| Pin | Voltage (V) |
|-----|-------------|
| C23 | V |
| C22 | 1.4 |
| C21 | - |
| C20 | 1 |
| C19 | 1-2 |
| C18 | 0.3-1 |
| C17 | 3.2 |
| C16 | 3.3 |
| C15 | 0.3-1 |
| C14 | 0.2-0.6 |
| C13 | 0.7 |
| C12 | 0.6 |
| C11 | 0.2 |
| C10 | 0.15 |
| C9 | 0.15 |
| C8 | 0.6-1.3 |
| C7 | - |
| C6 | 1.3-1.5 |
| B26 | G |
| B25 | V |
| B24 | 3.3 |
| B23 | 0 |
| B22 | - |
| B21 | - |
| B20 | 1.5 |
| B19 | 1-2 |
| B18 | 1.6-2.2 |
| B17 | 0 |
| B16 | 1.7 |
| B15 | 0.4-0.7 |
| B14 | 3 |
| B13 | 0-0.5 |
| B12 | 0-0.4 |
| B11 | 0.2-0.6 |
| B10 | 1.7 |
| B9 | 3.3 |
| B8 | 0.6-1.2 |
| B7 | 1.8-2.4 |
| B6 | 1.8-2.1 |
| A26 | V |
| A25 | G |
| A24 | G |
| A23 | V |
| A22 | - |
| A21 | 1.6 |
| A20 | 1.3 |
| A19 | 0.6-2 |
| A18 | 0.7-1.5 |
| A17 | - |
| A16 | 1-1.6 |
| A15 | 0.2-0.6 |
| A14 | 0.65 |
| A13 | 3.3 |
| A12 | 0 |
| A11 | 0.2-0.3 |
| A10 | 0.55 |
| A9 | 0.48 |
| A8 | 0.63 |
| A7 | 0.6 |
| A6 | 0.7-0.9 |

3.18 VOLTAGES_2

A

A 4/10 MAIN ASSY

• Input : Color-bar signal

IC4401

(AT90SC6464C-AL)

IC4001

(CASC-00003-000)

| Pin | Voltage (V) |
|-----|-------------|
| 1 | - |
| 2 | 1.7 |
| 3 | - |
| 4 | - |
| 5 | - |
| 6 | 0 |
| 7 | - |
| 8 | - |
| 9 | - |
| 10 | 3.3 |
| 11 | - |
| 12 | - |
| 13 | - |
| 14 | - |
| 15 | - |
| 16 | - |
| 17 | - |
| 18 | - |
| 19 | - |
| 20 | - |
| 21 | - |
| 22 | - |
| 23 | - |
| 24 | 0 |
| 25 | - |
| 26 | - |
| 27 | - |
| 28 | - |
| 29 | - |
| 30 | - |
| 31 | 3.3 |
| 32 | 3.3 |
| 33 | - |
| 34 | - |
| 35 | - |
| 36 | - |
| 37 | - |
| 38 | - |
| 39 | - |
| 40 | - |
| 41 | - |
| 42 | - |
| 43 | - |

| Pin | Voltage (V) |
|-----|-------------|
| 1 | 0 |
| 2 | 0 |
| 3 | 2.2 |
| 4 | 2.2 |
| 5 | 0 |
| 6 | 2.3 |
| 7 | 2.3 |
| 8 | 0 |
| 9 | 3.3 |
| 10 | 2.2 |
| 11 | 2.2 |
| 12 | 0 |
| 13 | 2 |
| 14 | 2.3 |
| 15 | 0 |
| 16 | 3.3 |
| 17 | 2 |
| 18 | 2.2 |
| 19 | 0 |
| 20 | 2 |
| 21 | 2 |
| 22 | 0 |
| 23 | 3.3 |
| 24 | 2 |
| 25 | 2 |
| 26 | 0 |
| 27 | 3.3 |
| 28 | 2 |
| 29 | 2.2 |
| 30 | 0 |
| 31 | 2.3 |
| 32 | 2.1 |
| 33 | 0 |
| 34 | 3.3 |
| 35 | 2 |
| 36 | 3.3 |
| 37 | 3.3 |
| 38 | 3.3 |
| 39 | 3.3 |
| 40 | 0 |
| 41 | 3.3 |
| 42 | 3.3 |
| 43 | 3.3 |
| 44 | 3.3 |
| 45 | 3.2 |
| 46 | 2.3 |
| 47 | 0 |
| 48 | 2.1 |
| 49 | 2.3 |
| 50 | 3.3 |
| 51 | 0 |
| 52 | 0 |
| 53 | 3.3 |
| 54 | 2.1 |
| 55 | 2.1 |
| 56 | 0 |
| 57 | 2.1 |
| 58 | 2.1 |
| 59 | 0 |
| 60 | 3.3 |
| 61 | 2.1 |
| 62 | 2.1 |
| 63 | 0 |
| 64 | 2.1 |
| 65 | 2.1 |
| 66 | 0 |
| 67 | 3.3 |
| 68 | 2.1 |
| 69 | 2.1 |
| 70 | 0 |
| 71 | 2 |
| 72 | 2 |
| 73 | 0 |
| 74 | 3.3 |
| 75 | 2.1 |
| 76 | 2.2 |
| 77 | 3.3 |
| 78 | 3.3 |
| 79 | 0 |
| 80 | 1.7 |
| 81 | 2.2 |
| 82 | 3.3 |
| 83 | 0 |
| 84 | 0 |
| 85 | 0 |
| 86 | 0 |
| 87 | 0 |
| 88 | 0 |
| 89 | 0 |
| 90 | 0 |

| Pin | Voltage (V) |
|-----|-------------|
| 91 | 3.3 |
| 92 | 0 |
| 93 | 0 |
| 94 | 3.3 |
| 95 | 0 |
| 96 | 3.3 |
| 97 | 3.3 |
| 98 | 5 |
| 99 | 5 |
| 100 | 1.7 |
| 101 | 0.4 |
| 102 | 1.7 |
| 103 | 1.7 |
| 104 | 3.3 |
| 105 | 0 |
| 106 | 0 |
| 107 | 1.7 |
| 108 | 1.7 |
| 109 | - |
| 110 | 3.3 |
| 111 | 0 |
| 112 | 3.3 |
| 113 | 3.3 |
| 114 | 3.3 |
| 115 | 3.3 |
| 116 | 0 |
| 117 | 3.3 |
| 118 | 3.3 |
| 119 | 0 |
| 120 | 1.7 |
| 121 | 3.3 |
| 122 | 3.3 |
| 123 | 3.3 |
| 124 | 0 |
| 125 | 0 |
| 126 | 1.7 |
| 127 | 0 |
| 128 | 20m |
| 129 | 3.1 |
| 130 | 3.3 |
| 131 | 0 |
| 132 | 3.1 |
| 133 | 3.3 |
| 134 | 3.1 |
| 135 | 0.2 |
| 136 | 0 |
| 137 | 1 |
| 138 | 2.6 |
| 139 | 0 |
| 140 | 1 |
| 141 | 0.6 |
| 142 | 0.7 |
| 143 | 0 |
| 144 | 3.3 |
| 145 | 2.2 |
| 146 | 1.2 |
| 147 | 0 |
| 148 | 1 |
| 149 | 1 |
| 150 | 1 |
| 151 | 0 |
| 152 | 1 |
| 153 | 2.5 |
| 154 | 0 |
| 155 | 0 |
| 156 | 0 |
| 157 | 3.3 |
| 158 | 3.3 |
| 159 | 0.8 |
| 160 | 1 |
| 161 | 1 |
| 162 | 0 |
| 163 | 0.1 |
| 164 | 3.3 |
| 165 | 1 |
| 166 | 3.3 |
| 167 | 3.3 |
| 168 | 3.3 |
| 169 | 3.3 |
| 170 | 3.3 |
| 171 | 3.3 |
| 172 | 3.3 |
| 173 | 3.3 |
| 174 | 1.4 |
| 175 | 0 |
| 176 | 0 |
| 177 | 3.3 |
| 178 | 3.3 |
| 179 | 3.3 |
| 180 | 4.1 |

| Pin | Voltage (V) |
|-----|-------------|
| 181 | 3.3 |
| 182 | 0 |
| 183 | 3.3 |
| 184 | 0 |
| 185 | 3.3 |
| 186 | 0 |
| 187 | 0 |
| 188 | 0 |
| 189 | 0 |
| 190 | 3.3 |
| 191 | 0 |
| 192 | 3.3 |
| 193 | 3.3 |
| 194 | 3.3 |
| 195 | 3.3 |
| 196 | 3.3 |
| 197 | 3.3 |
| 198 | 3.3 |
| 199 | 3.3 |
| 200 | 3.3 |
| 201 | 3.3 |
| 202 | 3.3 |
| 203 | 3.3 |
| 204 | 3.1 |
| 205 | 3.3 |
| 206 | 3.3 |
| 207 | 1.5 |
| 208 | 3.3 |

A 5/10 MAIN ASSY

IC5402

(XC2S15-5TQ144C)

| Pin | Voltage (V) |
|-----|-------------|
| 1 | 3.3 |
| 2 | 2.5 |
| 3 | 5 |
| 4 | 3.3 |
| 5 | 3.3 |
| 6 | 3.3 |
| 7 | 3.3 |
| 8 | 0 |
| 9 | 2.5 |
| 10 | 3.3 |
| 11 | 2.4 |
| 12 | 30m |
| 13 | 2.8 |
| 14 | 2.5 |
| 15 | 0 |
| 16 | 3.3 |
| 17 | 0 |
| 18 | 1.7 |
| 19 | 3.4 |
| 20 | 2.4 |
| 21 | 0 |
| 22 | 0 |
| 23 | 0 |
| 24 | 2.5 |
| 25 | 0 |
| 26 | 0 |
| 27 | 0 |
| 28 | 0 |
| 29 | 0 |
| 30 | 3.3 |
| 31 | 3.3 |
| 32 | 2.5 |
| 33 | 0 |
| 34 | 0 |
| 35 | 3.3 |
| 36 | 3.3 |
| 37 | 3.3 |
| 38 | 0 |
| 39 | 2.2 |
| 40 | 0 |
| 41 | 0 |
| 42 | 0.2 |
| 43 | 0 |
| 44 | 2.2 |
| 45 | 0 |
| 46 | 2.2 |
| 47 | 0 |
| 48 | 0 |
| 49 | 2.2 |
| 50 | 0 |
| 51 | 3.3 |
| 52 | 0 |
| 53 | 3.3 |
| 54 | 3.3 |
| 55 | 2.5 |
| 56 | 0 |
| 57 | 2.2 |
| 58 | 0 |
| 59 | 3.3 |
| 60 | 2.2 |
| 61 | 0 |
| 62 | 2.2 |
| 63 | 3.3 |
| 64 | 0.6 |
| 65 | 3.3 |
| 66 | 3.3 |
| 67 | 2.1 |
| 68 | 3.1 |
| 69 | 3.3 |
| 70 | 3.3 |
| 71 | 3.3 |
| 72 | 3.3 |

| Pin | Voltage (V) |
|-----|-------------|
| 73 | 0 |
| 74 | 3.3 |
| 75 | 0 |
| 76 | 0 |
| 77 | 0 |
| 78 | 10m |
| 79 | 0 |
| 80 | 0 |
| 81 | 0 |
| 82 | 2.5 |
| 83 | 0 |
| 84 | 0 |
| 85 | 0 |
| 86 | 0 |
| 87 | 3.3 |
| 88 | 0 |
| 89 | 0 |
| 90 | 3.3 |
| 91 | 1.6 |
| 92 | 2.5 |
| 93 | 0 |
| 94 | 0 |
| 95 | 0 |
| 96 | 0 |
| 97 | 2.5 |
| 98 | 0 |
| 99 | 0 |
| 100 | 0 |
| 101 | 0.8 |
| 102 | 0 |
| 103 | 0 |
| 104 | 1 |
| 105 | 1 |
| 106 | 3.1 |
| 107 | 3.3 |
| 108 | 3.3 |
| 109 | 0 |
| 110 | 0 |
| 111 | 3 |
| 112 | 3.3 |
| 113 | 0 |
| 114 | 3.3 |
| 115 | 3.3 |
| 116 | 0 |
| 117 | 3.3 |
| 118 | 3.3 |
| 119 | 0 |
| 120 | 3.3 |
| 121 | 3.3 |
| 122 | 3.3 |
| 123 | 3.3 |
| 124 | 3.3 |
| 125 | 2.5 |
| 126 | 3.3 |
| 127 | 3.3 |
| 128 | 0 |
| 129 | 3.3 |
| 130 | 3.3 |
| 131 | 3.3 |
| 132 | 0 |
| 133 | 3.3 |
| 134 | 3.3 |
| 135 | 0 |
| 136 | 3.3 |
| 137 | 3.3 |
| 138 | 0 |
| 139 | 0 |
| 140 | 0 |
| 141 | 0 |
| 142 | 2.5 |
| 143 | 0 |
| 144 | 3.4 |

B

C

D

E

F

A 7/10 MAIN ASSY**IC7001
(BCM7040KQL)**

• Input : Color-bar signal

| Pin | Voltage (V) | Pin | Voltage (V) |
|-----|-------------|-----|-------------|
| 1 | 3.3 | 91 | 1.5 |
| 2 | 3.3 | 92 | 0 |
| 3 | 3.3 | 93 | 0.2 |
| 4 | 3.3 | 94 | 0.4 |
| 5 | 3.3 | 95 | 0.6 |
| 6 | 1.7 | 96 | 0.8 |
| 7 | 0 | 97 | 0.8 |
| 8 | 1.8 | 98 | 0.8 |
| 9 | 2.4 | 99 | 0.8 |
| 10 | 2.6 | 100 | 0.8 |
| 11 | - | 101 | 40m |
| 12 | - | 102 | 40m |
| 13 | 3.3 | 103 | 1.8 |
| 14 | - | 104 | 0 |
| 15 | - | 105 | 0.8 |
| 16 | 2.5 | 106 | 1.1 |
| 17 | 2.3 | 107 | 0.8 |
| 18 | 2.2 | 108 | 0 |
| 19 | 2.3 | 109 | 0.9 |
| 20 | 0 | 110 | 0.8 |
| 21 | 2.3 | 111 | 1.8 |
| 22 | 2.4 | 112 | 1.3 |
| 23 | 1.8 | 113 | 1.3 |
| 24 | 2.3 | 114 | 1.6 |
| 25 | 2.4 | 115 | 1.4 |
| 26 | 2.3 | 116 | 1.9 |
| 27 | 2.3 | 117 | 0 |
| 28 | 2.4 | 118 | 3.3 |
| 29 | 2.4 | 119 | 1.1 |
| 30 | 2.4 | 120 | 1.7 |
| 31 | 2.4 | 121 | 1.1 |
| 32 | 2.4 | 122 | 0.8 |
| 33 | 2.4 | 123 | 0.9 |
| 34 | 2.5 | 124 | 0.8 |
| 35 | 3.3 | 125 | 1.4 |
| 36 | 3.3 | 126 | 0 |
| 37 | 3.3 | 127 | 1.5 |
| 38 | 3.3 | 128 | 1.5 |
| 39 | 3.3 | 129 | 0 |
| 40 | 1.8 | 130 | 2 |
| 41 | 3.3 | 131 | 3.3 |
| 42 | 3.3 | 132 | 0 |
| 43 | 3.3 | 133 | 1.8 |
| 44 | 0 | 134 | 1.6 |
| 45 | 1.8 | 135 | 1.3 |
| 46 | 3.2 | 136 | 1.4 |
| 47 | 1.5 | 137 | 1.3 |
| 48 | 2.4 | 138 | 1.6 |
| 49 | 2.4 | 139 | 1.4 |
| 50 | 2.3 | 140 | 1.4 |
| 51 | 2.4 | 141 | 2.2 |
| 52 | 2.3 | 142 | 1.4 |
| 53 | 2.4 | 143 | 1.1 |
| 54 | 2.3 | 144 | 1.4 |
| 55 | 2.3 | 145 | 1.4 |
| 56 | 2.3 | 146 | 1.6 |
| 57 | 2.3 | 147 | 1.8 |
| 58 | 2.3 | 148 | 1.5 |
| 59 | 2.3 | 149 | 1.7 |
| 60 | 2.3 | 150 | 1.2 |
| 61 | 2.3 | 151 | 1.2 |
| 62 | 2.3 | 152 | 0 |
| 63 | 2.3 | 153 | 1.2 |
| 64 | 0 | 154 | 1.3 |
| 65 | 2.3 | 155 | 3.3 |
| 66 | 3.3 | 156 | 1.2 |
| 67 | 3.3 | 157 | 1.2 |
| 68 | 0 | 158 | 1 |
| 69 | 0 | 159 | 1 |
| 70 | - | 160 | 0.9 |
| 71 | 2.7 | 161 | 1.4 |
| 72 | 0 | 162 | 0 |
| 73 | - | 163 | 1.7 |
| 74 | 3 | 164 | 0 |
| 75 | 0 | 165 | 3.3 |
| 76 | - | 166 | 0 |
| 77 | 3.3 | 167 | 0 |
| 78 | 0 | 168 | 0 |
| 79 | 1.4 | 169 | 1.7 |
| 80 | 1.7 | 170 | 1.7 |
| 81 | 0 | 171 | 1.4 |
| 82 | 3.3 | 172 | 0 |
| 83 | 0 | 173 | 3.3 |
| 84 | 3.3 | 174 | 0 |
| 85 | 1.7 | 175 | 1.8 |
| 86 | 1.5 | 176 | 0 |
| 87 | 1.8 | | |
| 88 | 0 | | |
| 89 | 3.3 | | |
| 90 | 1.2 | | |

A 8/10 MAIN ASSY**IC8501
(MSP4448G-FH-A2)**

• Audio signal : 1kHz

| Pin | Voltage (V) |
|-----|-------------|
| 1 | 3.3 |
| 2 | 3.3 |
| 3 | 1.7 |
| 4 | 1.7 |
| 5 | 2.5 |
| 6 | 0.5 |
| 7 | - |
| 8 | - |
| 9 | - |
| 10 | 5 |
| 11 | 0 |
| 12 | 0 |
| 13 | - |
| 14 | 0 |
| 15 | 0 |
| 16 | 5 |
| 17 | 2.1 |
| 18 | 2.1 |
| 19 | 0 |
| 20 | 70m |
| 21 | 70m |
| 22 | - |
| 23 | - |
| 24 | - |
| 25 | 3.8 |
| 26 | 3.8 |
| 27 | 0 |
| 28 | 3.8 |
| 29 | 3.8 |
| 30 | 6.4 |
| 31 | 6.4 |
| 32 | 7.2 |
| 33 | 0 |
| 34 | 3.8 |
| 35 | 3.8 |
| 36 | 3.8 |
| 37 | 0 |
| 38 | 3.8 |
| 39 | 3.8 |
| 40 | 0 |
| 41 | 3.8 |
| 42 | 3.8 |
| 43 | 0 |
| 44 | 3.8 |
| 45 | 3.8 |
| 46 | 2.7 |
| 47 | 3.8 |
| 48 | 0 |
| 49 | 5 |
| 50 | 1.6 |
| 51 | 1.6 |
| 52 | 30m |
| 53 | 0 |
| 54 | 0 |
| 55 | 2.2 |
| 56 | - |
| 57 | 2.6 |
| 58 | - |
| 59 | 0.2 |
| 60 | 5 |
| 61 | 0 |
| 62 | - |
| 63 | 5 |
| 64 | - |

A 8/10 MAIN ASSY**IC8801
(SAA7115HL/V1)**

• Input : Color-bar signal

| Pin | Voltage (V) | Pin | Voltage (V) |
|-----|-------------|-----|-------------|
| 1 | 3.3 | 51 | 3.3 |
| 2 | 0.12 | 52 | 3 |
| 3 | 2.4 | 53 | 2.8 |
| 4 | 60m | 54 | 1.4 |
| 5 | 0 | 55 | 0.9 |
| 6 | 1.6 | 56 | 1 |
| 7 | 1.5 | 57 | 1 |
| 8 | 3.3 | 58 | 3.3 |
| 9 | 0 | 59 | 1.2 |
| 10 | - | 60 | 1.7 |
| 11 | 3.3 | 61 | 1.4 |
| 12 | 0.9 | 62 | 1.3 |
| 13 | 1 | 63 | 0 |
| 14 | 0.2 | 64 | 30m |
| 15 | 0 | 65 | 40m |
| 16 | 50m | 66 | 40m |
| 17 | 3.2 | 67 | 40m |
| 18 | 40m | 68 | 3.3 |
| 19 | 1 | 69 | - |
| 20 | 1 | 70 | 40m |
| 21 | 0 | 71 | 40m |
| 22 | 0.8 | 72 | 30m |
| 23 | 3.3 | 73 | 2.4 |
| 24 | 0 | 74 | 2.4 |
| 25 | 3.3 | 75 | 3.3 |
| 26 | 0 | 76 | 0 |
| 27 | 3.3 | 77 | 2.4 |
| 28 | 40m | 78 | 0.4 |
| 29 | 20m | 79 | 2.4 |
| 30 | 3.3 | 80 | 3.3 |
| 31 | 3.3 | 81 | 1.6 |
| 32 | 3.3 | 82 | 0.9 |
| 33 | 3.3 | 83 | 3.3 |
| 34 | 3.3 | 84 | 1 |
| 35 | 4m | 85 | 1.2 |
| 36 | 4m | 86 | 1 |
| 37 | - | 87 | 1.1 |
| 38 | 0 | 88 | 0 |
| 39 | - | 89 | 1.2 |
| 40 | 3m | 90 | 1.3 |
| 41 | 0 | 91 | 20m |
| 42 | 3.3 | 92 | 2.7 |
| 43 | 3.3 | 93 | 3.3 |
| 44 | 40m | 94 | 1.7 |
| 45 | 1.7 | 95 | 0.2 |
| 46 | 2.8 | 96 | 3.3 |
| 47 | 3.3 | 97 | 0 |
| 48 | 1.7 | 98 | 2.4 |
| 49 | 0 | 99 | 2.4 |
| 50 | 0 | 100 | 0 |

3.19 VOLTAGES_3

A 9/10 MAIN ASSY

IC9001

(FLI2301-BC)

• Input : Color-bar signal

| Pin | Voltage (V) |
|-----|-------------|
| 1 | 0 |
| 2 | 0 |
| 3 | 0 |
| 4 | 0 |
| 5 | 0 |
| 6 | 0 |
| 7 | 0 |
| 8 | 3.3 |
| 9 | 0 |
| 10 | 0 |
| 11 | 0 |
| 12 | 0 |
| 13 | 0 |
| 14 | 0 |
| 15 | 0 |
| 16 | 1.9 |
| 17 | 0 |
| 18 | 0 |
| 19 | 0 |
| 20 | 0 |
| 21 | 0 |
| 22 | 0 |
| 23 | 0 |
| 24 | 0 |
| 25 | 0 |
| 26 | 0 |
| 27 | 0 |
| 28 | 0 |
| 29 | 0 |
| 30 | 3.3 |
| 31 | 0 |
| 32 | 0 |
| 33 | 0 |
| 34 | 0 |
| 35 | 0 |
| 36 | 1.9 |
| 37 | 0 |
| 38 | 0 |
| 39 | 0 |
| 40 | 0 |
| 41 | 0 |
| 42 | 0 |
| 43 | 0 |
| 44 | 0 |
| 45 | 3.3 |
| 46 | 3.3 |
| 47 | 3.3 |
| 48 | 3.3 |
| 49 | 0 |
| 50 | 0.9 |
| 51 | 0.6 |
| 52 | 0.8 |
| 53 | 0.7 |
| 54 | 0.7 |
| 55 | 0.7 |
| 56 | 0.8 |
| 57 | 1.5 |
| 58 | 1.2 |
| 59 | 1.3 |
| 60 | 1.9 |
| 61 | 1.2 |
| 62 | 3.3 |
| 63 | 0 |
| 64 | 1.3 |
| 65 | 0.9 |
| 66 | 0.9 |
| 67 | 0.5 |
| 68 | 1.9 |
| 69 | 0 |
| 70 | 0.9 |
| 71 | 0.7 |
| 72 | 0.8 |
| 73 | 0.8 |
| 74 | 0.8 |
| 75 | 0.8 |
| 76 | 0.6 |
| 77 | 1.5 |
| 78 | 1.2 |
| 79 | 1.3 |
| 80 | 1.9 |
| 81 | 0 |
| 82 | 1.9 |
| 83 | 1.2 |
| 84 | 1.3 |
| 85 | 0.8 |
| 86 | 0.9 |
| 87 | 0.5 |
| 88 | 3.3 |
| 89 | 0 |
| 90 | 0 |


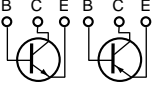

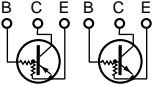

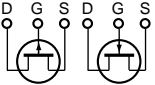

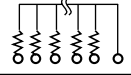


| Pin | Voltage (V) |
|-----|-------------|
| 91 | 0.3 |
| 92 | 0.3 |
| 93 | 0.4 |
| 94 | 0.8 |
| 95 | 0.8 |
| 96 | 1.9 |
| 97 | 0 |
| 98 | 0.8 |
| 99 | 0.8 |
| 100 | 0 |
| 101 | 0.7 |
| 102 | 0.7 |
| 103 | 0.7 |
| 104 | 3.3 |
| 105 | 3.1 |
| 106 | 3.1 |
| 107 | 2.5 |
| 108 | 2.5 |
| 109 | 2.9 |
| 110 | 0 |
| 111 | 1.5 |
| 112 | 3.3 |
| 113 | 0 |
| 114 | 1.5 |
| 115 | 0 |
| 116 | 1.7 |
| 117 | - |
| 118 | 3 |
| 119 | 3.3 |
| 120 | 3.3 |
| 121 | 0 |
| 122 | 2.5 |
| 123 | 1.9 |
| 124 | 0 |
| 125 | 1.6 |
| 126 | 1 |
| 127 | 0.9 |
| 128 | 3.3 |
| 129 | 0 |
| 130 | 0.9 |
| 131 | 0.9 |
| 132 | 1 |
| 133 | 1 |
| 134 | 0.9 |
| 135 | 2.4 |
| 136 | 0.7 |
| 137 | 1 |
| 138 | 1.8 |
| 139 | 0 |
| 140 | 1 |
| 141 | 1 |
| 142 | 0.9 |
| 143 | 1 |
| 144 | 1 |
| 145 | 2.3 |
| 146 | 3.3 |
| 147 | 0 |
| 148 | 1.6 |
| 149 | 1 |
| 150 | 1.4 |
| 151 | 0.9 |
| 152 | 2.9 |
| 153 | 1.2 |
| 154 | 1.2 |
| 155 | 0.12 |
| 156 | 3.3 |
| 157 | 1.9 |
| 158 | 0 |
| 159 | 0 |
| 160 | 1.9 |
| 161 | 1.9 |
| 162 | 0 |
| 163 | 0 |
| 164 | 1.9 |
| 165 | 1.9 |
| 166 | 0 |
| 167 | 0 |
| 168 | 1.9 |
| 169 | 0 |
| 170 | 1.2 |
| 171 | 3.2 |
| 172 | 0 |
| 173 | 0.5 |
| 174 | 3.2 |
| 175 | 0 |
| 176 | 1.2 |
| 177 | 3.2 |
| 178 | 0 |
| 179 | 2.2 |
| 180 | 1.3 |

| Pin | Voltage (V) |
|-----|-------------|
| 181 | 1.3 |
| 182 | 1.3 |
| 183 | 3.3 |
| 184 | 0 |
| 185 | 0 |
| 186 | 3.3 |
| 187 | 3.3 |
| 188 | 0 |
| 189 | 0 |
| 190 | 0 |
| 191 | 1.4 |
| 192 | 2 |
| 193 | 3.3 |
| 194 | 0 |
| 195 | 1.4 |
| 196 | 1.3 |
| 197 | 1.9 |
| 198 | 0 |
| 199 | 1.6 |
| 200 | 1.8 |
| 201 | 1.3 |
| 202 | 1.5 |
| 203 | 1.2 |
| 204 | 1.2 |
| 205 | 1.5 |
| 206 | 0 |
| 207 | 0 |
| 208 | 0 |

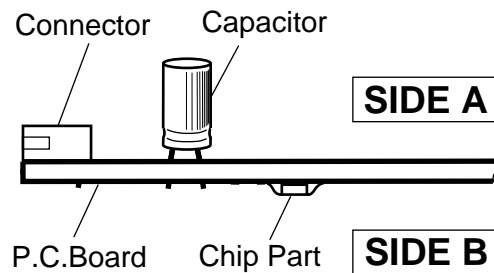
4. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS :

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

| Symbol In PCB Diagrams | Symbol In Schematic Diagrams | Part Name |
|---|---|--------------------------|
|  |  | Transistor |
|  |  | Transistor with resistor |
|  |  | Field effect transistor |
|  |  | Resistor array |
|  |  | 3-terminal regulator |

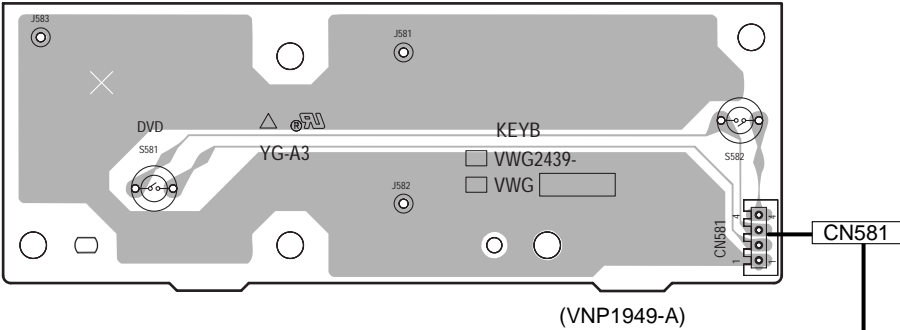
3. The parts mounted on this PCB include all necessary parts for several destinations.
For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.



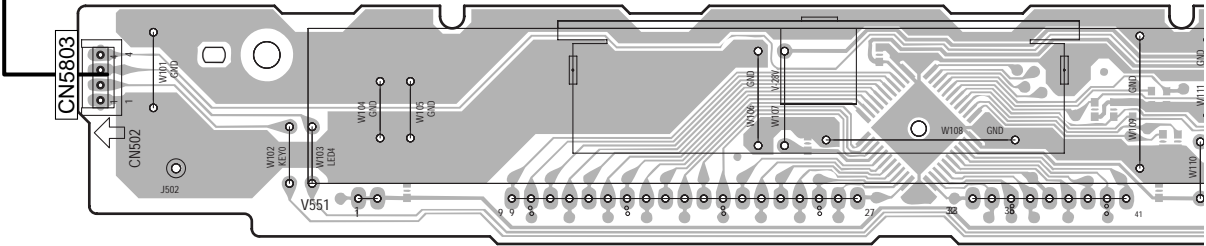
4.1 FLKY, LEDB and KEYB ASSYS

SIDE A

KEYB ASSY



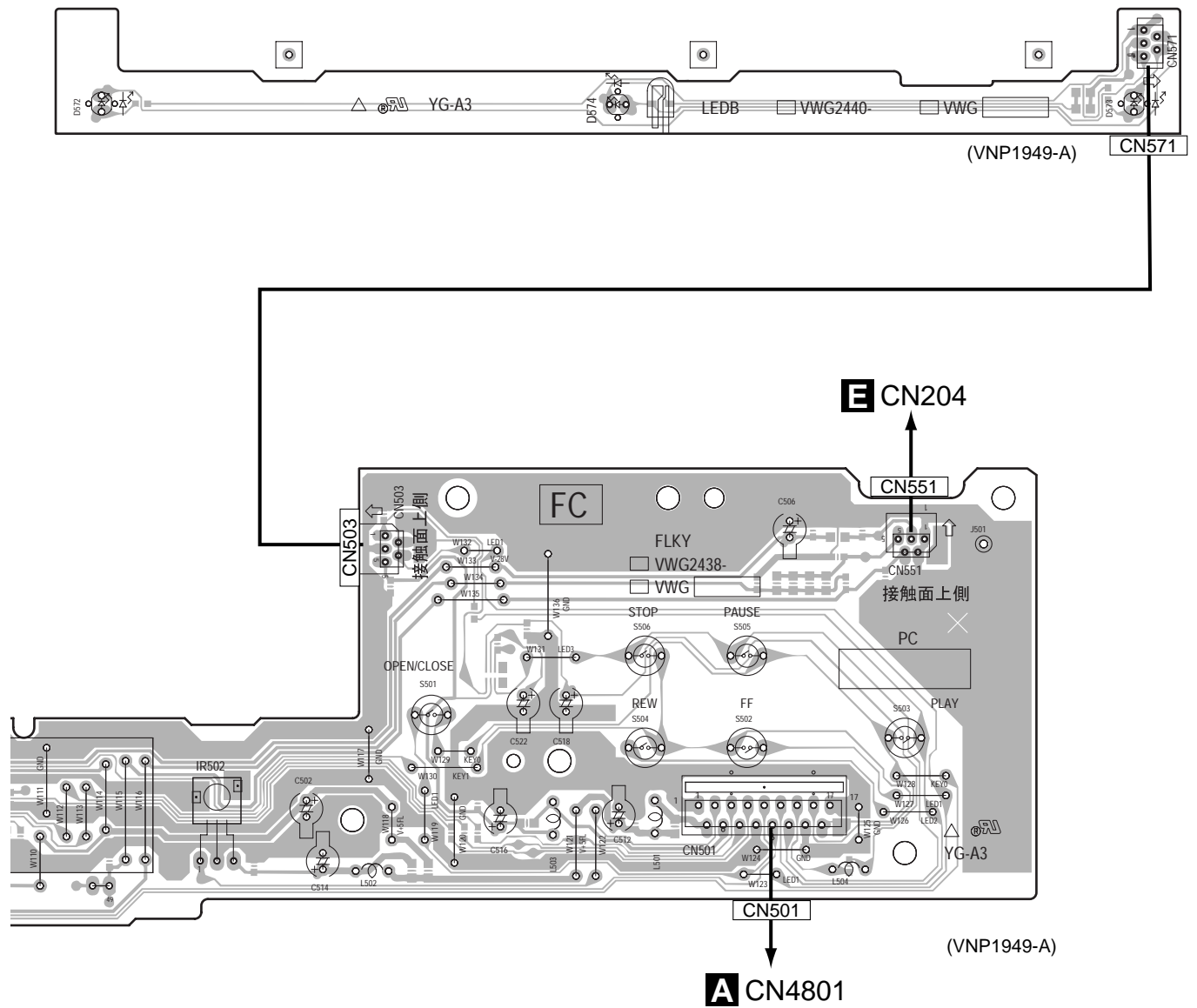
FLKY ASSY



B D

SIDE A

C LEDB ASSY

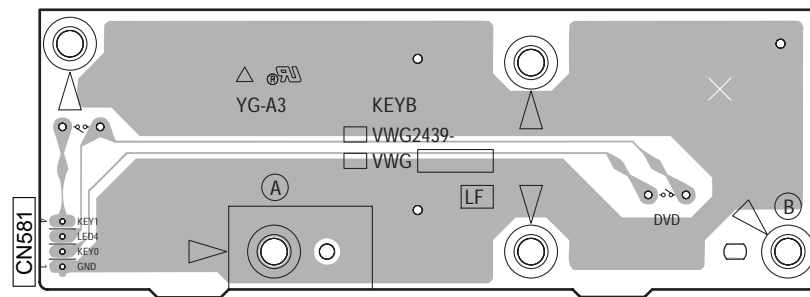


SIDE B

A

B

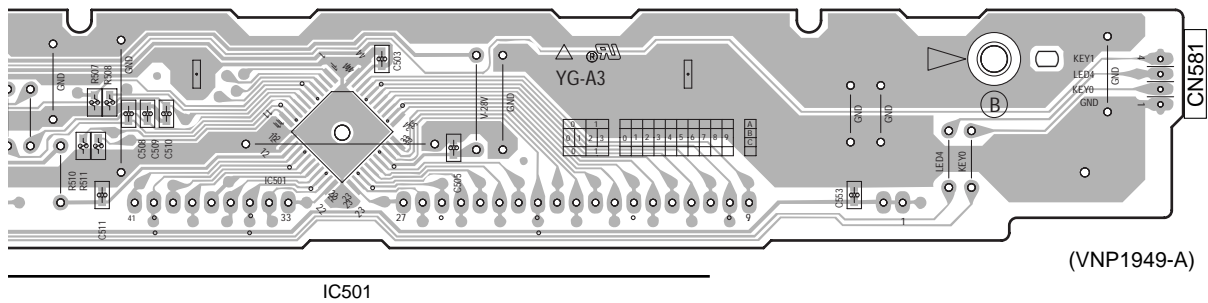
■ KEYB ASSY



(VNP1949-A)

C

D



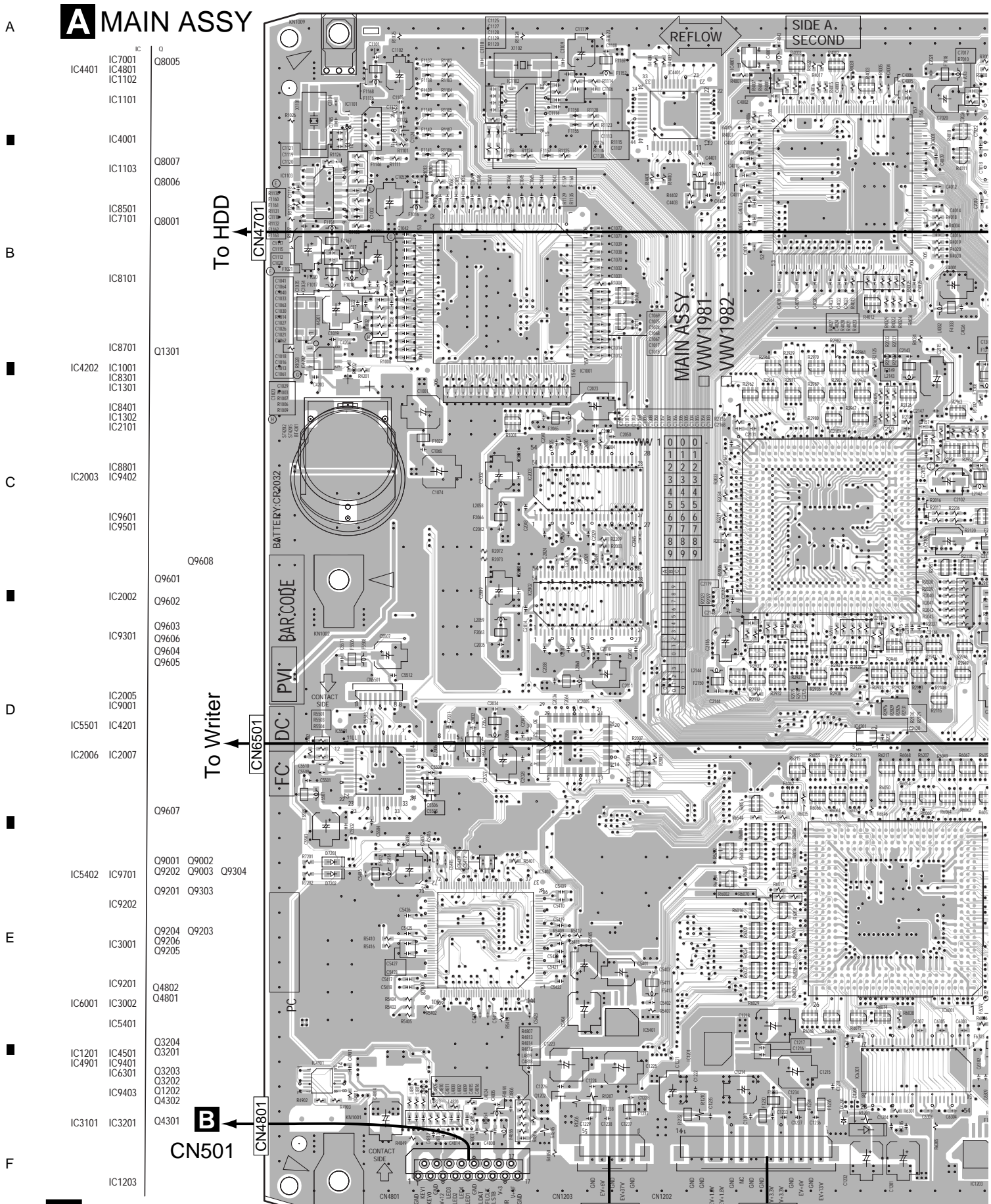
(VNP1949-A)

E

F

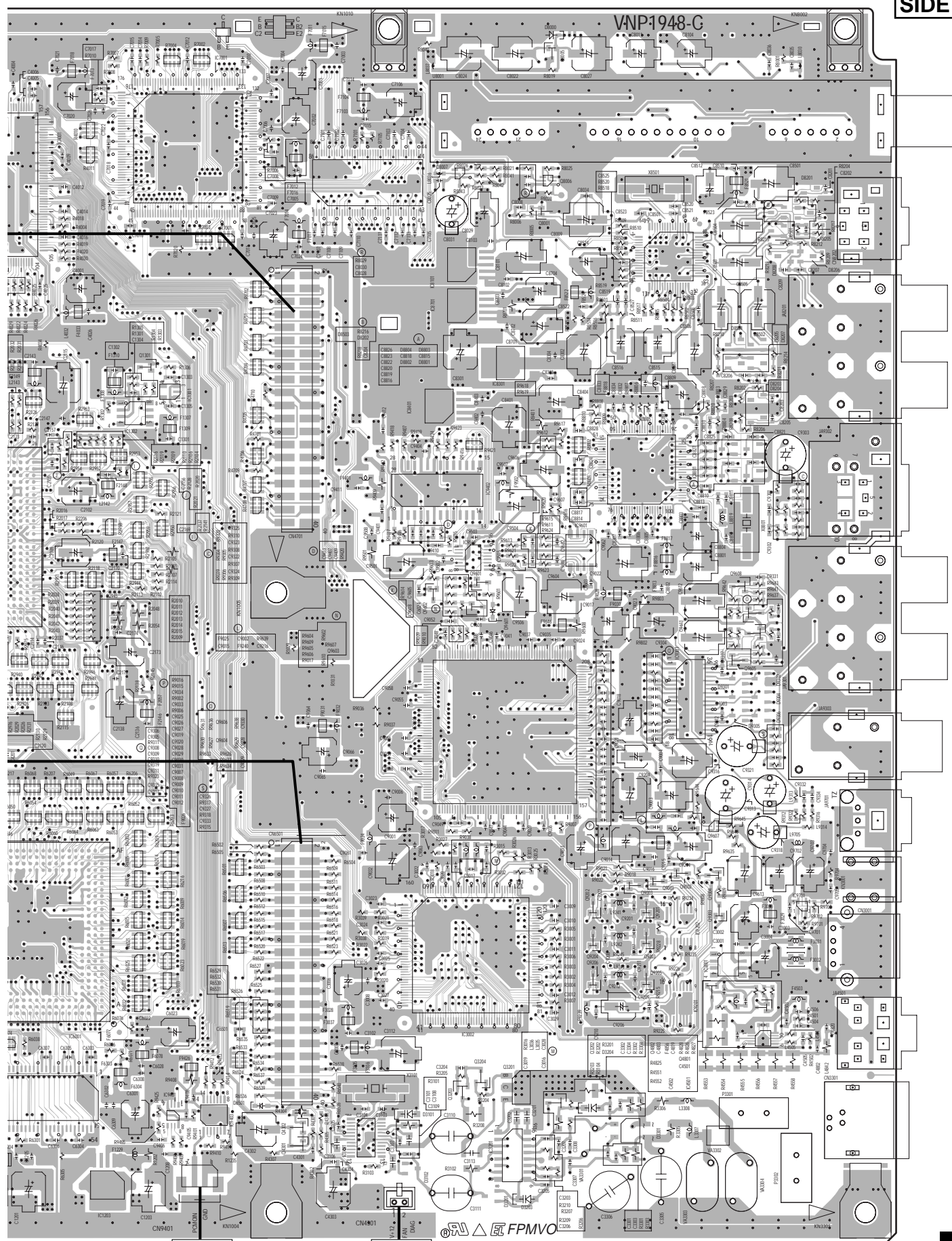
4.2 MAIN ASSY

A MAIN ASSY



A • This diagram has four layers.
In the two middle layers, mainy Vcc and GND are connected.

SIDE A



A

B

C

D

E

F

A

A

A MAIN ASSY

IC Q

B

C

IC2004

Q2001
Q2002

IC2001

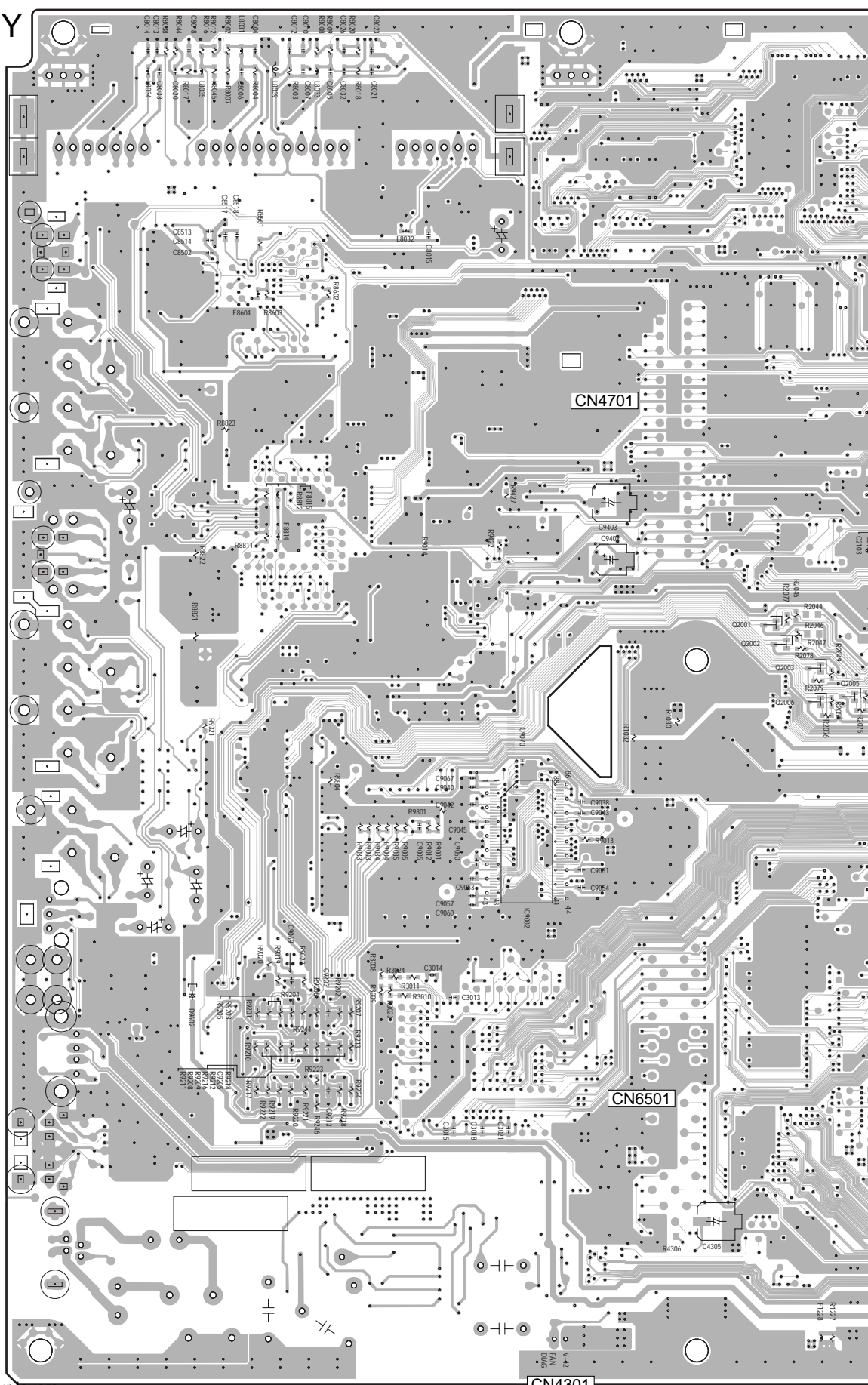
Q2003
Q2004
Q2005
Q2006

D

IC9002

E

F

**A**

- This diagram has four layers.
- In the two middle layers, mainy Vcc and GND are connected.

SIDE B

A

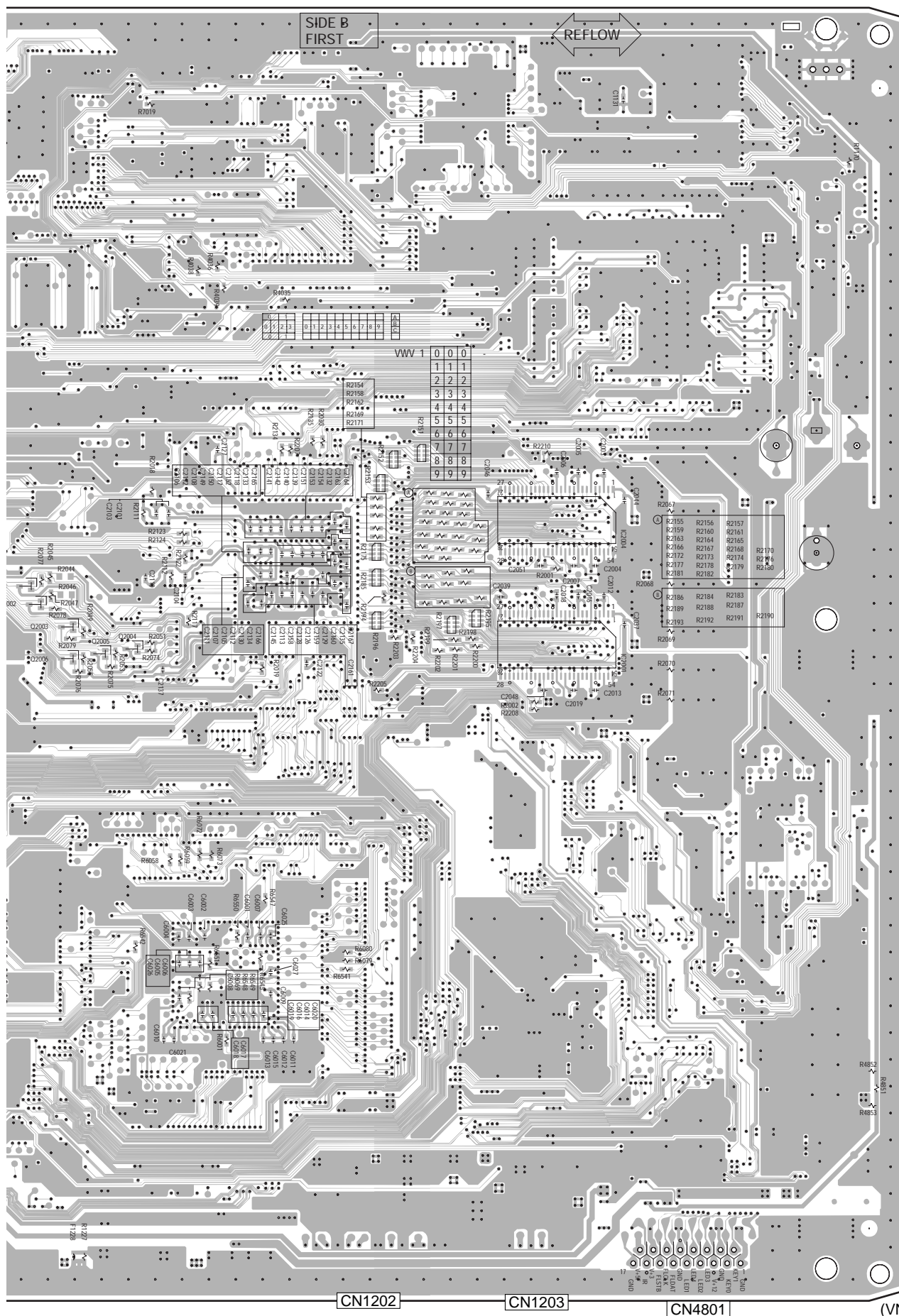
B

C

D

E

F

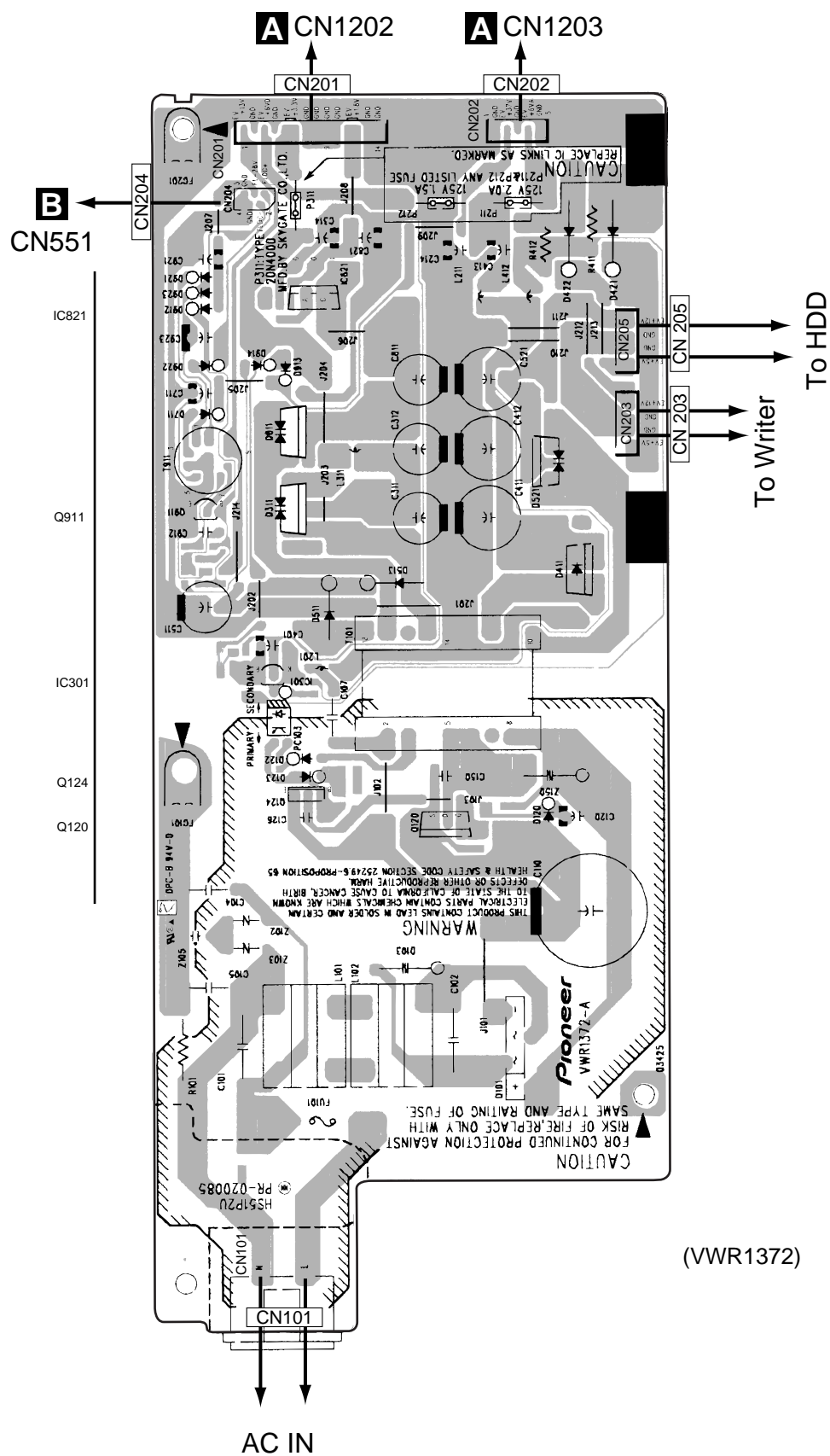


4.3 POWER SUPPLY ASSY

SIDE A

SIDE A

POWER SUPPLY ASSY



(VWR1372)

5. PCB PARTS LIST

NOTES: ●Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.

●The \triangle mark found on some component parts indicates the importance of the safety factor of the part.

Therefore, when replacing, be sure to use parts of identical designation.

●When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω \rightarrow 56×10^1 \rightarrow 561 RD1/4PU $\boxed{5}\boxed{6}\boxed{1}J$

47k Ω \rightarrow 47×10^3 \rightarrow 473 RD1/4PU $\boxed{4}\boxed{7}\boxed{3}J$

0.5 Ω \rightarrow R50 RN2H $\boxed{R}\boxed{5}\boxed{0}K$

1 Ω \rightarrow 1R0 RS1P $\boxed{1}\boxed{R}\boxed{0}K$

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω \rightarrow 562×10^1 \rightarrow 5621 RN1/4PC $\boxed{5}\boxed{6}\boxed{2}\boxed{1}F$

LIST OF WHOLE PCB ASSEMBLIES

| Mark | Symbol and Description | DVR-810H-S /KU | DVR-57H /KU |
|-------------|------------------------|-------------------|----------------|
| NSP | 1..FLKB ASSY | VWM2214 | VWM2214 |
| | 2..FLKY ASSY | VWG2438 | VWG2438 |
| NSP | 2..KEYB ASSY | VWG2439 | VWG2439 |
| NSP | 2..LEDB ASSY | VWG2440 | VWG2440 |
| | 1..MAIN ASSY | VWV1981 | VWV1982 |
| \triangle | 1..POWER SUPPLY ASSY | VWR1372 | VWR1372 |

A MAIN ASSY

VWV1981 and VWV1982 are constructed the same except for the following :

| Mark | Symbol and Description | VWV1981 | VWV1982 |
|------|---------------------------|---------|---------|
| | CN8202 4PMINI DIN SOCKET | AKP7045 | AKP7050 |
| | JA8201 6P PIN JACK | VKB1200 | VKB1199 |
| | JA9301 6P PIN JACK | VKB1200 | VKB1199 |
| | JA9302 4P MINI DIN SOCKET | AKP7117 | AKP7116 |
| | JA9303 3P PIN JACK | VKB1165 | VKB1198 |

Mark No. **Description** **Part No.**

B FLKY ASSY

SEMICONDUCTORS

IC501 PT6315
Q504 RN4903

SWITCHES AND RELAYS

S501-S506 VSG1024

CAPACITORS

C502, C512, C514, C516 CEJQ101M6R3
C506, C518 CEJQ220M35
C513, C517, C519 CKSRYB103K50
C503, C511, C515 CKSRYF104Z25
C505, C551, C553 CKSRYF104Z50

RESISTORS

Other Resistors RS1/16S###J

OTHERS

CN502 FJ 4P CONNECTOR 04R-FJ
CN501 17P FFC CONNECTOR 52492-1720
IC502 REMOTE RECEIVER UNIT RPM7138-H4
V551 FL TUBE VAW1081
CN503, CN551 5P FFC CONNECTOR VKN1265
0 FL HOLDER VNF1120

D KEYB ASSY

SWITCHES AND RELAYS

S581 VSG1024

OTHERS

CN581 FJ 4P CONNECTOR 04P-FJ

C LEDB ASSY

SEMICONDUCTORS

D574 LED (Blue) SLR-343BBT
D572 LED (Orange) SLR-343DC
D573 LED (Red) SLR-343VC

RESISTORS

Other Resistors RS1/16S###J

OTHERS

CN571 5P FFC CONNECTOR VKN1236

A MAIN ASSY

SEMICONDUCTORS

IC4501 ADM101EARM
IC1302 ADM708SAR
IC4401 AT90SC6464C-AL
IC8301 BA178M08FP
IC2101 BCM7020RKP1-D0

IC7001 BCM7040KQL
IC4001 CASC-00003-000
IC9402 CS8420-CS
IC9001 FLI2301
IC1101 ICS650R-22
IC6301 K4S641632F-TC75

Mark No. **Description** **Part No.**

IC9301 LA73054
IC3001 LM3526M-H
IC4202 M41T00M6
IC1103 MK2745-24S
IC1102 MK2745-27R
IC8501 MSP4448G-FH-A2

IC7101, IC9002 MT48LC2M32B2TG-6F
IC2001-IC2004 MT48LC8M16A2TG-75F
IC9501 PCM1742KE
IC6001 PE5337A
IC2005 PEA005A8

IC5401 PQ025EZ01ZP
IC8701 PQ033EZ01ZP
IC1201, IC8101, IC8401 PQ05DZ51
⚠ IC1203 PQ12DZ51
IC8801 SAA7115HLV1

IC3101 SI2433-KTR-REVF
IC3201 SI3015-KSR-REVD
IC2007 SN74AHC1G04DBV
IC2006 SN74AHC2G32HDCT
IC9401 SN74AHC2G53HDCT

IC1301 SN74AHCT1G125DBV
IC9202 SN74LV4053APW
IC4201 TC74A5-3.3VCT
IC9403 TC74VHC14FT
IC4901 TC74VHCT125AFT

IC9601 UPC4570G2
IC1001 UPD30541GD167H
IC3002 UPD720100AGM-8EY
IC5402 XC2S15-5TQ144C
Q4802 2SA1036K

Q9001-Q9003, Q9201-Q9206 2SA1576A
⚠ Q1202 2SC2411K
Q4301, Q4302 2SC2411K
Q1301, Q4801 2SC4081
⚠ Q8005 2SC4081

Q9604-Q9606, Q9608 2SD2114K
Q3201 BCP56T1
Q9303 DTA124EUA
Q9601 DTC124EUA
Q9607 HN1B04FU

Q3202, Q3204 MMBTA42LT1
Q3203 MMBTA92LT1
⚠ D1204 1SR154-400
⚠ D9602 1SS355
D3301 CBRHD-06

D8501-D8504, D8801-D8804 DA204K
D3102, D3201 DAN217
D3204 RLZ20B
D3101, D3203 RLZ5.6B
D8000 UDZS33B

COILS AND FILTERS

F1307, F1308, F3106, F4503 DTF1069
⚠ F4844, F4855 DTF1069
F4856, F5507, F8523, F8524 DTF1069
F8817, F8818, F9024-F9026 DTF1069
L3035, L3036 DTL1034

⚠ L3307, L3308 DTL1034
L9705 LCTAW100J2520

| Mark No. | Description | Part No. |
|-----------------------------------|-------------|---------------|
| L9241-L9243 | | LCTAW8R2J2520 |
| F9240, F9401, F9502 | | VTF1096 |
| F1019-F1022 | | VTF1170 |
| ⚠ F1167-F1169 | | VTF1170 |
| F1230, F1232-F1234, F1236-F1238 | | VTF1170 |
| F2062-F2066, F2146-F2150, F3037 | | VTF1170 |
| F4033, F5411, F5412, F6078, F6303 | | VTF1170 |
| F9029-F9031 | | VTF1170 |
| F3029, F4409, F7015-F7018, F7104 | | VTF1171 |
| F3031, F3032 | | VTF1184 |
| L8031-L8033, L8036, L8037 | | VTL1079 |
| L4504, L4505, L4802, L4803 | | VTL1083 |
| L4808-L4811, L4819, L4820 | | VTL1083 |
| L4823, L4824 | | VTL1083 |
| L9313, L9314 | | VTL1089 |
| L8039 | | VTL1096 |
| L4842 | | VTL1101 |

CAPACITORS

| | |
|-----------------------------------|--------------|
| C1109, C1110, C8201-C8203, C8205 | CCSRCH100D50 |
| C1023, C1034, C9602, C9609 | CCSRCH101J50 |
| C9202, C9208, C9212 | CCSRCH120J50 |
| C8811, C8812, C9332-C9334 | CCSRCH150J50 |
| C3103, C3104, C4504, C4505 | CCSRCH330J50 |
| C4809-C4818, C4820, C8206-C8209 | CCSRCH330J50 |
| C9322-C9327 | CCSRCH330J50 |
| C1028 | CCSRCH470J50 |
| C1029, C9328-C9331 | CCSRCH471J50 |
| C8007, C8034, C8517, C8518 | CCSRCH560J50 |
| C9605, C9608 | CCSRCH681J50 |
| C9201, C9207, C9211 | CCSRCH8R0D50 |
| C9018, C9021 | CEVW100M16 |
| C8503-C8506 | CEVW100M50 |
| C1201, C1203, C1218, C1223, C1225 | CEVW101M16 |
| C1232, C4302, C4303, C4305, C8302 | CEVW101M16 |
| C8404, C8501, C8507, C8701, C9204 | CEVW101M16 |
| C9304, C9316, C9501, C9504, C9506 | CEVW101M16 |
| C9604, C9606, C9611-C9613 | CEVW101M16 |
| C1002, C1019, C1036, C1102, C1111 | CEVW101M4 |
| C1115, C1214, C1221, C2002, C2009 | CEVW101M4 |
| C2011, C2023, C2027, C2102, C2109 | CEVW101M4 |
| C2115, C2116, C2138, C2173, C3006 | CEVW101M4 |
| C4001, C5401, C5405, C5408, C6023 | CEVW101M4 |
| C6301, C7001, C7002, C7020, C7023 | CEVW101M4 |
| C7106, C8704, C8801, C8804, C8809 | CEVW101M4 |
| C9001, C9003, C9013, C9014, C9017 | CEVW101M4 |
| C9066, C9214 | CEVW101M4 |
| C8515, C8516 | CEVW220M16 |
| C8022, C8027 | CEVW220M50 |
| C1001, C1074 | CEVW221M4 |
| C3002, C3004, C8011, C8104, C8512 | CEVW470M6R3 |
| C8524, C9402, C9702, C9703 | CEVW470M6R3 |
| C3202 | CKSQYB105K16 |
| C3106-C3108, C3201 | CKSQYB224K25 |
| C8010, C8012, C8032, C8033 | CKSRYB102K50 |
| C3204, C8204, C9407, C9413 | CKSRYB103K50 |
| C9005, C9019, C9020, C9301, C9302 | CKSRYB104K16 |
| C3203, C3205, C3206 | CKSRYB104K25 |
| C3207 | CKSRYB182K50 |
| C4304, C4802, C8514 | CKSRYB332K50 |

| Mark No. | Description | Part No. |
|-----------------------------------|-------------|--------------|
| C3301, C3302 | | CKSRYB392K50 |
| C8820, C8823 | | CKSRYB473K25 |
| C9409 | | CKSRYB822K50 |
| C1003-C1018, C1021, C1024-C1027 | | CKSRYF104Z25 |
| C1030-C1033, C1038-C1052 | | CKSRYF104Z25 |
| C1054-C1059, C1061-C1073, C1204 | | CKSRYF104Z25 |
| C1208, C1213, C1216, C1217, C1222 | | CKSRYF104Z25 |
| C1224, C1226, C1231, C1236 | | CKSRYF104Z25 |
| C1301-C1305, C2028, C2031, C2032 | | CKSRYF104Z25 |
| C2034, C2047, C2120, C2121, C2174 | | CKSRYF104Z25 |
| C3001, C3003, C3007-C3029 | | CKSRYF104Z25 |
| C3101, C3102, C3105, C4002-C4026 | | CKSRYF104Z25 |
| C4201, C4204, C4401, C4402 | | CKSRYF104Z25 |
| C4501-C4503, C4506, C4803, C4805 | | CKSRYF104Z25 |
| C4807, C4819, C4901, C5402, C5403 | | CKSRYF104Z25 |
| C5406, C5407, C5409-C5413 | | CKSRYF104Z25 |
| C5415-C5429, C5501, C5502 | | CKSRYF104Z25 |
| C6001, C6002, C6004-C6006, C6008 | | CKSRYF104Z25 |
| C6010-C6013, C6015-C6018 | | CKSRYF104Z25 |
| C6020, C6021, C6025, C6027 | | CKSRYF104Z25 |
| C6303-C6307, C6309, C6310, C6501 | | CKSRYF104Z25 |
| C7005-C7019, C7022, C7024, C7025 | | CKSRYF104Z25 |
| C7101-C7105, C7107-C7113 | | CKSRYF104Z25 |
| C8014, C8015, C8102, C8303, C8304 | | CKSRYF104Z25 |
| C8402, C8403, C8502, C8508 | | CKSRYF104Z25 |
| C8510, C8511, C8513, C8519 | | CKSRYF104Z25 |
| C8522, C8523, C8525, C8527 | | CKSRYF104Z25 |
| C8702, C8703, C8802, C8803 | | CKSRYF104Z25 |
| C8805-C8808, C8813-C8819 | | CKSRYF104Z25 |
| C8821, C8822, C8824-C8828 | | CKSRYF104Z25 |
| C8830-C8834, C9052, C9203, C9205 | | CKSRYF104Z25 |
| C9213, C9215, C9216, C9305-C9312 | | CKSRYF104Z25 |
| C9315, C9317, C9319, C9401 | | CKSRYF104Z25 |
| C9404-C9406, C9408, C9411 | | CKSRYF104Z25 |
| C9502, C9503, C9505, C9507, C9508 | | CKSRYF104Z25 |
| C9603, C9607, C9704 | | CKSRYF104Z25 |
| C1228, C1237, C8021, C8023, C8026 | | CKSRYF104Z50 |
| C1020, C1022, C1035, C1037, C1053 | | CKSRYF105Z10 |
| C1060, C1101, C1103, C1108 | | CKSRYF105Z10 |
| C1112-C1114, C1116-C1131, C1227 | | CKSRYF105Z10 |
| C1229, C1233-C1235, C1238, C2001 | | CKSRYF105Z10 |
| C2003-C2008, C2010, C2012-C2022 | | CKSRYF105Z10 |
| C2024-C2026, C2029, C2030 | | CKSRYF105Z10 |
| C2035-C2046, C2048-C2051, C2101 | | CKSRYF105Z10 |
| C2103-C2108, C2110-C2114 | | CKSRYF105Z10 |
| C2117-C2119, C2122-C2137 | | CKSRYF105Z10 |
| C2139-C2172, C4806, C4808, C6003 | | CKSRYF105Z10 |
| C6007, C6009, C6014, C6019, C6022 | | CKSRYF105Z10 |
| C6026, C6028, C6302, C6308 | | CKSRYF105Z10 |
| C7003, C7004, C7021, C7026 | | CKSRYF105Z10 |
| C7114, C7115, C8103, C9002, C9004 | | CKSRYF105Z10 |
| C9006-C9012, C9015, C9016 | | CKSRYF105Z10 |
| C9023-C9031, C9033-C9051 | | CKSRYF105Z10 |
| C9053-C9061, C9064, C9065 | | CKSRYF105Z10 |
| C9067-C9070 | | CKSRYF105Z10 |
| C9410 | | CKSRYF474Z16 |
| ⚠ C3110, C3111 150pF | | VCG1040 |
| ⚠ C3305, C3306 1000pF | | VCG1041 |
| C3303, C3304 560pF/250 | | VCG1042 |
| C3113 (22000pF/250) | | VCG1043 |

| Mark No. | Description | Part No. |
|---------------------|-------------|----------|
| C8520, C8521 | 3.3pF/50 | VCG1044 |
| C9303, C9313, C9321 | 1000uF/6.3 | VCH1250 |
| C9314, C9318 | 470uF/6.3 | VCH1251 |

RESISTORS

| | |
|-----------------------------------|---------------|
| R4002, R6074, R7003 | RAB4C0R0J |
| R6206, R6209, R6214, R6216, R6501 | RAB4C102J |
| R6506, R6507, R6513, R6519, R6524 | RAB4C102J |
| R2006, R2008, R2133, R4003, R4008 | RAB4C103J |
| R4010-R4012, R6031-R6033, R6049 | RAB4C103J |
| R6067, R6068, R6203, R6204, R6207 | RAB4C103J |
| R6212, R6215, R6217 | RAB4C103J |
| R6003-R6016, R6018-R6030, R6041 | RAB4C220J |
| R6048, R6050-R6057, R6060-R6066 | RAB4C220J |
| R2151-R2153, R2175, R2185 | RAB4C330J |
| R2195-R2197, R2926-R2939 | RAB4C330J |
| R2941, R2942, R2944-R2947 | RAB4C330J |
| R2950-R2964, R2967-R2971, R2974 | RAB4C330J |
| R2980-R2982, R4702-R4705 | RAB4C330J |
| R4707, R4708, R4711, R7002, R7004 | RAB4C330J |
| R8801, R8802, R9421 | RAB4C330J |
| R1001, R1008, R1010-R1012, R2103 | RAB4C472J |
| R2108, R2115, R2118, R2126, R7001 | RAB4C472J |
| R4706 | RAB4C820J |
| R9614, R9622 | RN1/16SE1002D |
| R9613, R9621 | RN1/16SE1501D |
| R9611, R9624 | RN1/16SE2202D |
| R1014, R3305, R3306, R4845, R8401 | RS1/10S0R0J |
| R8701, R9014, R9408, R9409, R9501 | RS1/10S0R0J |
| R9608 | RS1/10S0R0J |
| R1002, R3101, R3102 | RS1/10S100J |
| R3303, R3304 | RS1/10S106J |
| R3203 | RS1/10S222J |
| R1206 | RS1/10S331J |
| R4304, R4306 | RS1/10S4R7J |
| R3301, R3302 | RS1/10S563J |
| R2015, R8804 | RS1/16S1001F |
| R3202 | RS1/16S1003F |
| ⚠ R4854 | RS1/16S102J |
| R2009-R2014 | RS1/16S1200F |
| R3210 | RS1/16S12R0F |
| R3008, R3009, R3013, R3014 | RS1/16S1502F |
| R9415 | RS1/16S1601F |
| R9420 | RS1/16S1800F |
| R2043 | RS1/16S3300F |
| R4303 | RS1/16S3301F |
| R3010-R3012, R3015 | RS1/16S33R0F |
| R3207 | RS1/16S3900F |
| R2120 | RS1/16S61R9F |
| R8203-R8205, R8208, R9003-R9005 | RS1/16S75R0F |
| R9307-R9310, R9312, R9315-R9318 | RS1/16S75R0F |
| R3016 | RS1/16S9101F |
| R3206 | RS1/16S9311F |
| R4551-R4558 | RS1/4S2R7J |
| R3201, R3208 1.78k 1/4W | VCN1132 |
| R3023-R3026 2.7ohm 1/16W | VCN1133 |
| Other Resistors | RS1/16S###J |

OTHERS

| | | |
|--------|--------------------|-----------|
| CN4801 | 17P FFC CONNECTOR | 9604S-17C |
| CN8202 | 4P MINI DIN SOCKET | AKP7045 |

| Mark No. | Description | Part No. |
|--------------------------------|----------------------|--------------|
| JA9302 | 4P MIN DIN SOCKET | AKP7117 |
| ⚠ CN1202 | PH CONNECTOR | B14B-PH-SM3 |
| CN9401 | PH CONNECTOR | B2B-PH-SM3 |
| CN1203 | PH CONNECTOR | B5B-PH-SM3 |
| CN3001 | USB CONNECTOR | BKP1134 |
| X4201 | CR. RESO. (32.76MHz) | BSS1115 |
| VA3302 | SURGE ABSORBER | DSSA-P3100SB |
| VA3301 | SURGE ABSORBER | ERZV07D271CS |
| ⚠ VA3303, VA3304 | SURGE ABSORBER | ERZV10D471CS |
| JA9701 | OPT. LINK OUT 12MB/S | GP1FA502TZ |
| CN4301 | 2P PLUG | KM200SA2 |
| P3301, P3302 | POLY SWICH | TR600-150-RB |
| ⚠ BT4201 | LITHIUM BATTERY | VEM1033 |
| JA9303 | 3P PIN JACK | VKB1165 |
| JA8201, JA9301 | 6P PIN JACK | VKB1200 |
| CN4701 | 40P PIN HEADER | VKN1804 |
| ⚠ CN6501 | 40P PIN HEADER | VKN1804 |
| JA4501 | DUAL MINI JACK | VKN1807 |
| ⚠ CN3301 | MODULAR CONNECTOR | VKN1808 |
| KN3001 | SCREW PLATE | VNE1948 |
| KN1009, KN1010, KN8002 | WRAPPING TERMINAL | VNF1084 |
| KN1001, KN1002, KN1004, KN1005 | | VNF1109 |
| KN3301 | EARTH TERMINAL | VNF1109 |
| X1102 | CR. RESO. (27MHz) | VSS1191 |
| X8801 | CR. RESO. (24.57MHz) | VSS1192 |
| X3101 | CR. RESO. (4.91MHz) | VSS1193 |
| X8501 | CR. RESO. (18.43MHz) | VSS1194 |
| U8001 | TV TUNER PACK | VXF1025 |



POWER SUPPLY ASSY

SEMICONDUCTORS

| | | |
|--------|--------|---------|
| ⚠ P211 | (2A) | VEK1078 |
| ⚠ P212 | (1.5A) | VEK1079 |
| ⚠ P311 | (4A) | VEK1076 |
| ⚠ D513 | | VZF1127 |
| D103 | | UNK1V26 |

FUSE RESISTORS

| | |
|--------------|---------|
| ⚠ R411, R412 | VZC1067 |
|--------------|---------|

6. ADJUSTMENT

- There is no information to be shown in this chapter.

7. GENERAL INFORMATION

7.1 DIAGNOSIS

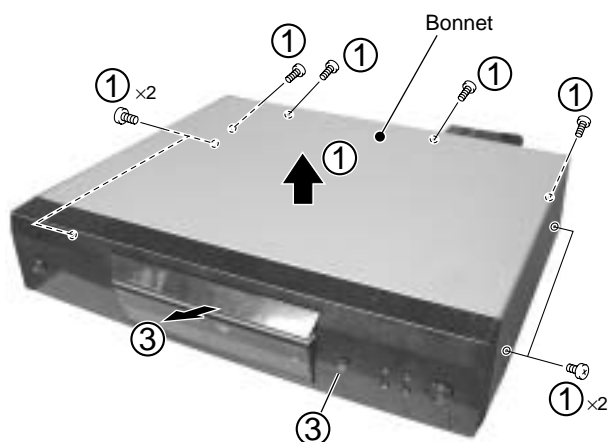
7.1.1 DISASSEMBLY

DIAGNOSIS OF PCBs

Note: For performing the diagnosis shown below, the following jig cables for service are required:

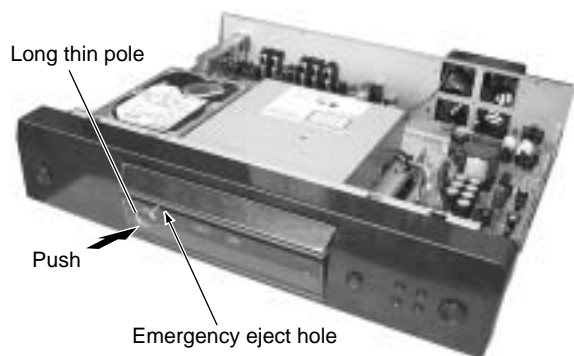
- GGD1365

- ① Remove bonnet by removing the eight screws.
- ② Plug the AC power cord into the AC socket to turn on the power.
- ③ Press the ▲ (OPEN/CLOSE) button to open the tray.

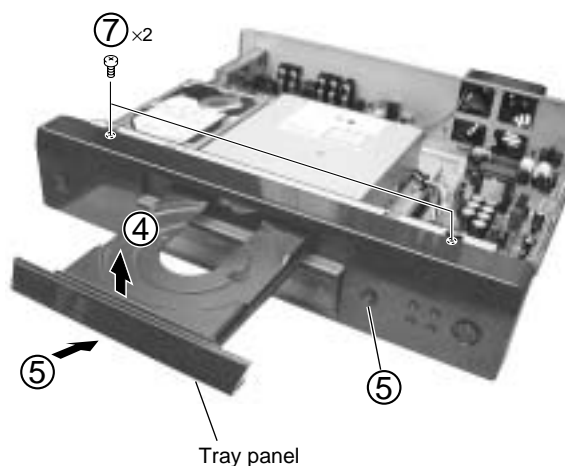


• How to open the Tray when the power cannot be on

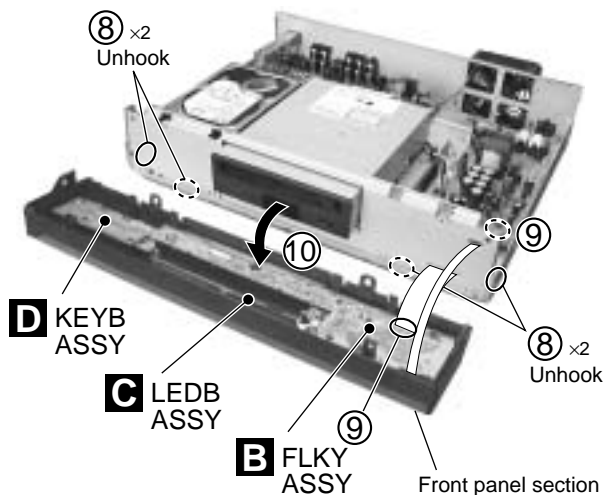
When the player cannot eject disc tray due to power failure or any other reasons, use a long thin pole and push the emergency eject hole on the front panel to eject.



- ④ Remove the tray panel.
- ⑤ Press the ▲ (OPEN/CLOSE) button to close the tray.
- ⑥ Unplug the AC power cord to turn off the power.
- ⑦ Remove the two screws.

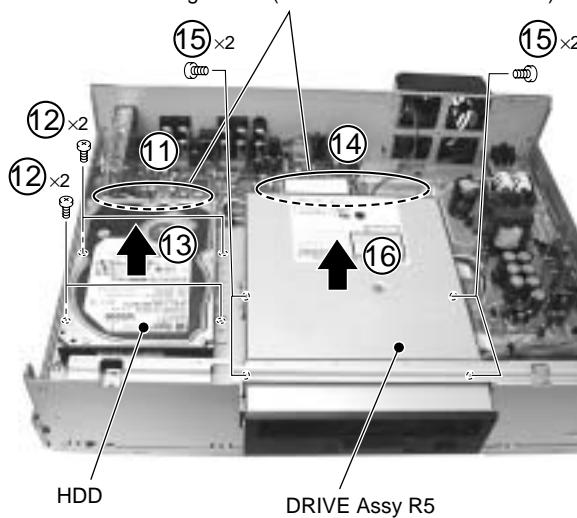


- ⑧ Remove the four hooks.
- ⑨ Disconnect the two flexible cables.
- ⑩ Remove the front panel section.

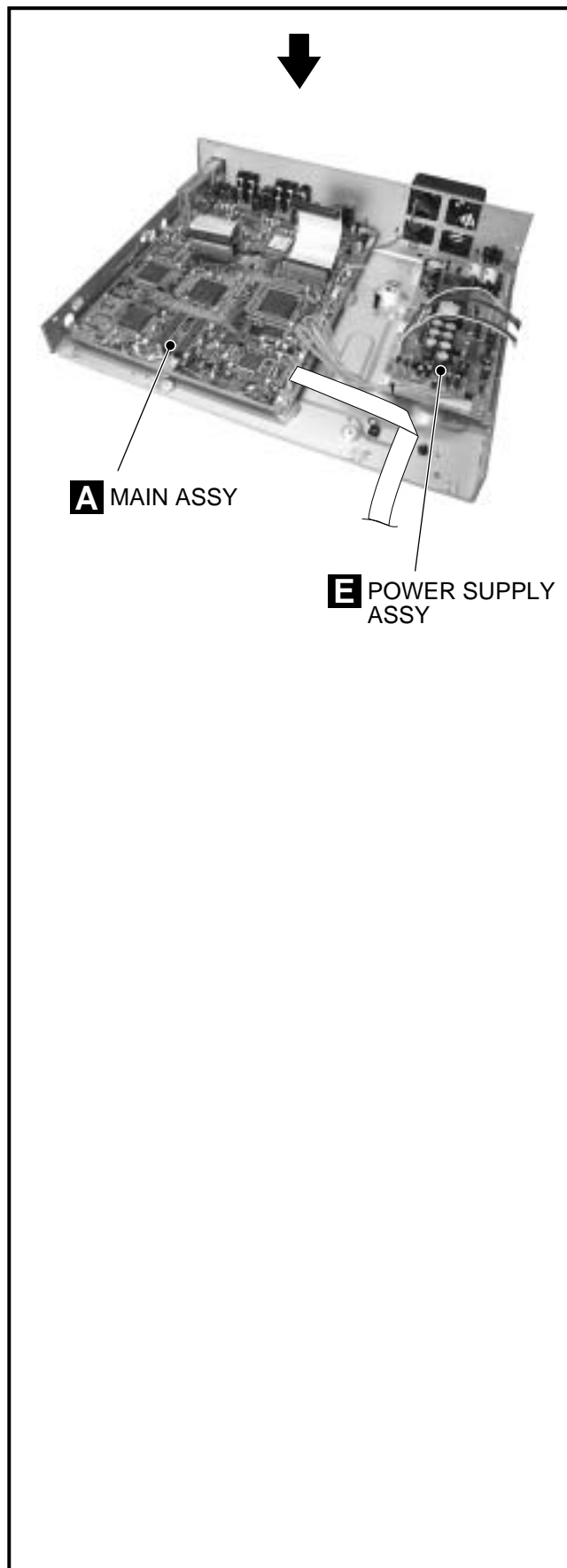
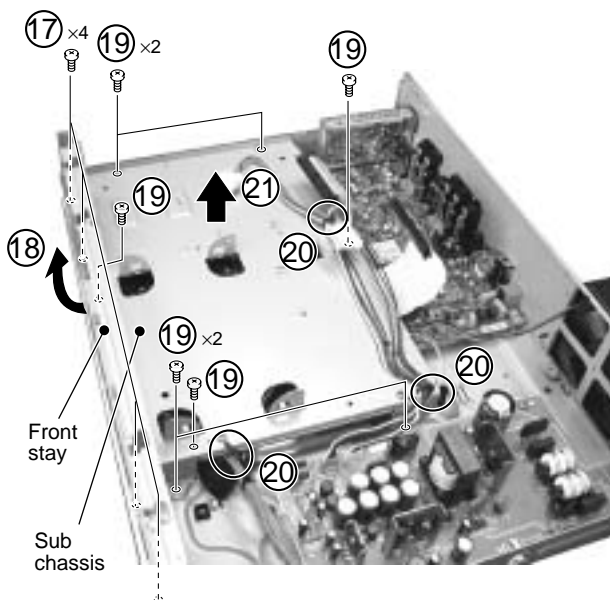


- ⑪ Disconnect the two connectors.
- ⑫ Remove the four screws.
- ⑬ Remove the HDD.
- ⑭ Disconnect the three connectors.
- ⑮ Remove the four screws.
- ⑯ Remove the DRIVE Assy R5.

Note: When diagnosing the HDD and the DRIVE Assy R5, use the two Jig cables (Shield ATA cable: GGD1365).

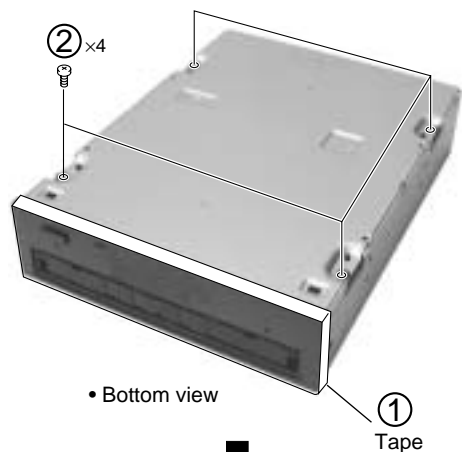


- ⑰ Remove the four screws.
- ⑱ Remove the front stay.
- ⑲ Remove the seven screws.
- ⑳ Release cables from the three cord holders.
- ㉑ Remove the sub chassis.

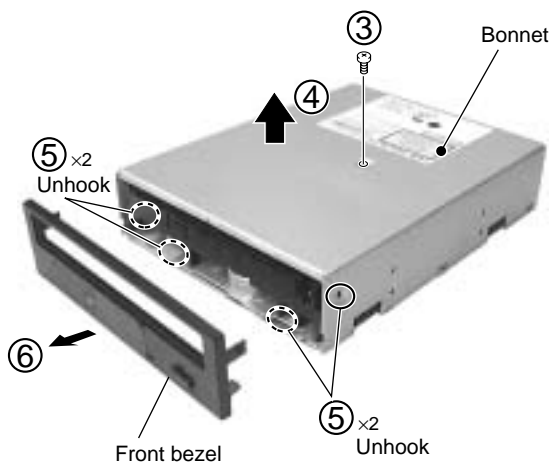


■ DRIVE ASSY R5 (DVD-R/RW WRITER)

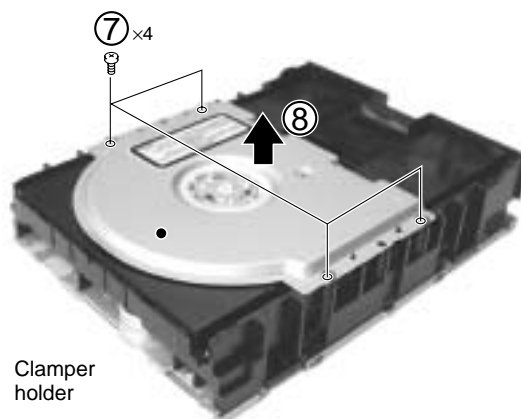
- ① Tear off a tape.
- ② Remove the four screws.



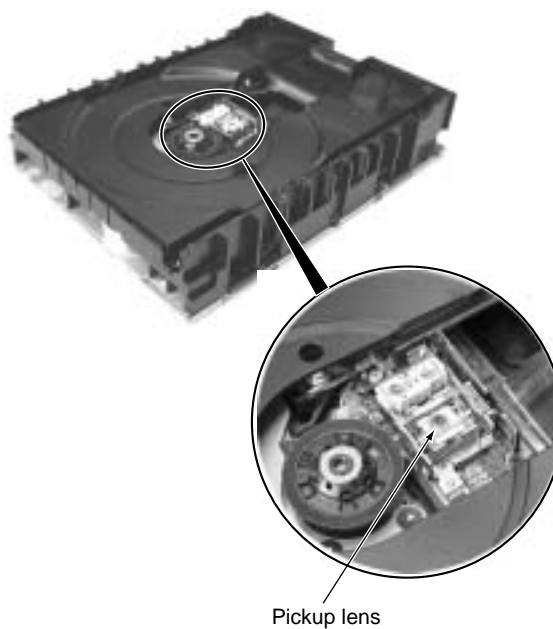
- ③ Remove the one screw.
- ④ Remove the bonnet.
- ⑤ Remove the four hooks.
- ⑥ Remove the front bezel.



- ⑦ Remove the four screws.
- ⑧ Remove the clamber holder.



- ⑨ Clean the pickup lens.



■ CLEANING



Before shipping out the product, be sure to clean the following positions by using the prescribed cleaning tools:

| Position to be cleaned | Cleaning tools |
|------------------------|---|
| Pickup lenses | Cleaning liquid : GEM1004 Cleaning paper : GED-008 |

7.1.2 CAUTIONS ON HANDLING THE HDD

(1) Cautions on Handling the HDD

- The HDD is very sensitive to shocks and vibrations. Care must be taken especially during operation (when the power is on).
- The HDD is very sensitive to electrostatic charges.
- Rapid change in temperature or humidity may cause deterioration of the HDD.

Note: After receiving damage caused by any above-mentioned factors, the HDD may operate normally for dozens or some hundreds of hours but then suddenly crash. If you are certain you have damaged a new repair part (HDD) while making repairs, do not use the part.

The HDD is about 10 times as sensitive to shock during operation than during nonoperation.

Reference: Main specifications on damage to the HDD

| | During operation | During nonoperation |
|------------------------|------------------|---------------------|
| Shock G (acceleration) | <approx. 20 G | <approx. 200 G |
| Temperature change | < 20°C/hour | |
| Moisture change | < 20%/hour | |

Reference: Estimate value of falling distance vs. shock (G) when the HDD is dropped without protection

| Falling distance | Landing surface | Granite surface | Concrete floor | Synthetic-resin-coated table | Antistatic sponge |
|---------------------|-----------------|-----------------|----------------|------------------------------|-------------------|
| 0.5 inch / 12.7 cm | | 387 | 217 | 200 | 26 |
| 1.0 inch / 25.4 cm | | 595 | 457 | 310 | 37 |
| 2.0 inch / 50.8 cm | | 1133 | 600 | 680 | 70 |
| 4.0 inch / 101.6 cm | | 1795 | 1040 | 1050 | 267 |

(2) Cautions on handling the product on which the HDD is mounted or the HDD as a repair part, and examples of dangerous handling

[Cautions on handling the product on which the HDD is mounted]

- While the unit is turned on, the HDD is always in operation. Be sure NOT to impart shock to the unit.

• Examples of dangerous handling: while the power is on

- Bumping on the bonnet
- Dropping an object, such as a small screwdriver or remote control unit, onto the bonnet, or bumping an object against the cabinet
- Moving the unit by dragging
- Stacking another product on the unit

Note: Be sure NOT to impart shock, such as bumping or hitting a screwdriver against the HDD, during diagnosis with the bonnet open.

• Examples of dangerous handling: while the power is off

- Imparting strong shock, although the HDD is more resistant to shock when the power is off
 - Dropping the unit from a height of several centimeters, or after lifting one side of the unit up, then letting the unit drop.
 - Do NOT move the unit immediately after the power is turned off. Wait at least 30 seconds after the indication on the FL display changed from POWER OFF to the clock indication before moving the unit.
- If the AC power cord is accidentally disconnected before turning the unit off, wait at least for one minute before moving it. In this case, damage to the HDD caused by sudden shutoff may be small, because the emergency relief mechanism is activated. However, if sudden shutoff occurs during recording or playback, recorded data may be damaged. Be sure to check operations.

[Cautions on handling the HDD as a repair part]

1. Handle the HDD in a safe environment:
 - Handle the HDD over an antistatic pad that can also absorb shock.
 - Wear wrist bands to prevent electrostatic charges generated in your body from affecting the HDD.
2. The following must be observed when handling the HDD:
 - Handle one HDD at a time. Do NOT hold several HDDs at the same time.
 - Grip the HDD on both sides so that you do not touch its terminals or circuit boards.
 - Do NOT stack one HDD onto another HDD (even if the HDDs are protected in antistatic bags).
 - Do NOT bump the HDDs against one another.
 - Do NOT bump any tool, such as a screwdriver, or other hard object against the HDD.
 - When a repair part (HDD) is transported and there is a large temperature difference between outdoors and indoors, to the indoor, leave it in its package for about a half day to gradually cool or warm the HDD to room temperature before unpacking it.

[Notes on packing for shipment]

- When returning a defective HDD for analysis, handle with care as if it were a good product. Otherwise, the results of analysis may not be correct.
- When packing, use the antistatic bag and packing materials in which the repair part for service was delivered. Attach a copy of the slip for service or a memo stating symptoms in as much detail as possible.

■ Outline and part No. of the HDDs

| Model Name | Capacity | Maxtor | |
|------------|-----------|-------------------------------------|----------------------------|
| | | Pioneer's Part No. (for service) | Manufacturer's Part No. |
| DVR-810H-S | 80 Gbyte | VXF1010 | 4R080L* |
| DVR-57H | 120 Gbyte | VXF1016 | 4R120L* |

↑ Pioneer's part No. is not stamped.

- When replacing the HDD, carefully check the capacity and manufacturer's part No. on the part label to avoid replacing with a similar but inappropriate product. You can also check the model No. of the mounted HDD on the Service mode screen.
- Do NOT use repair parts, such as commercially available HDDs, other than those designated above, as their functions, performance or reliability cannot be guaranteed.

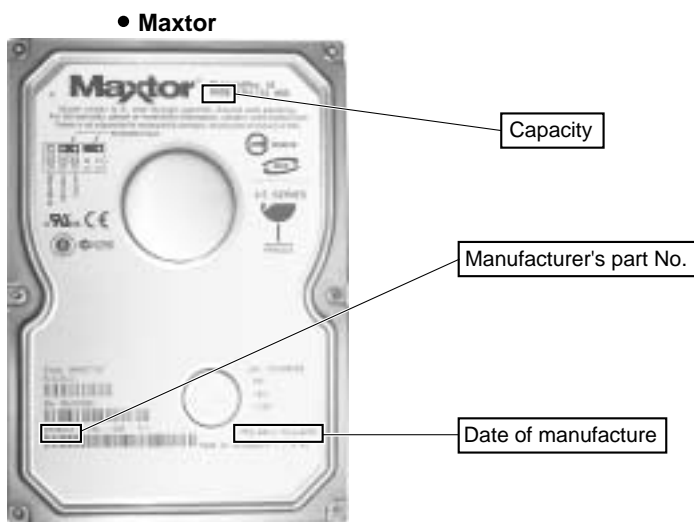


Fig. 1 Location of the data on capacity and part No. of the HDD

■ Setting of the jumper pin of the HDD

For shipment, the jumper pin of the HDD is inserted into CS (Cable Select), as shown below. Before mounting the HDD on the unit, change the position of the jumper pin to MASTER.

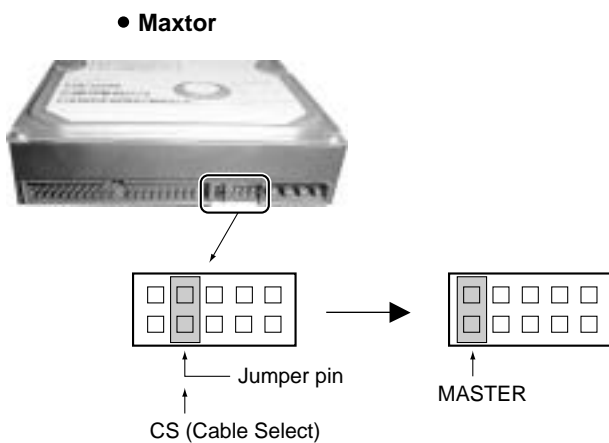


Fig. 2 Setting of the jumper pin

7.2 PARTS

7.2.1 IC

- The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

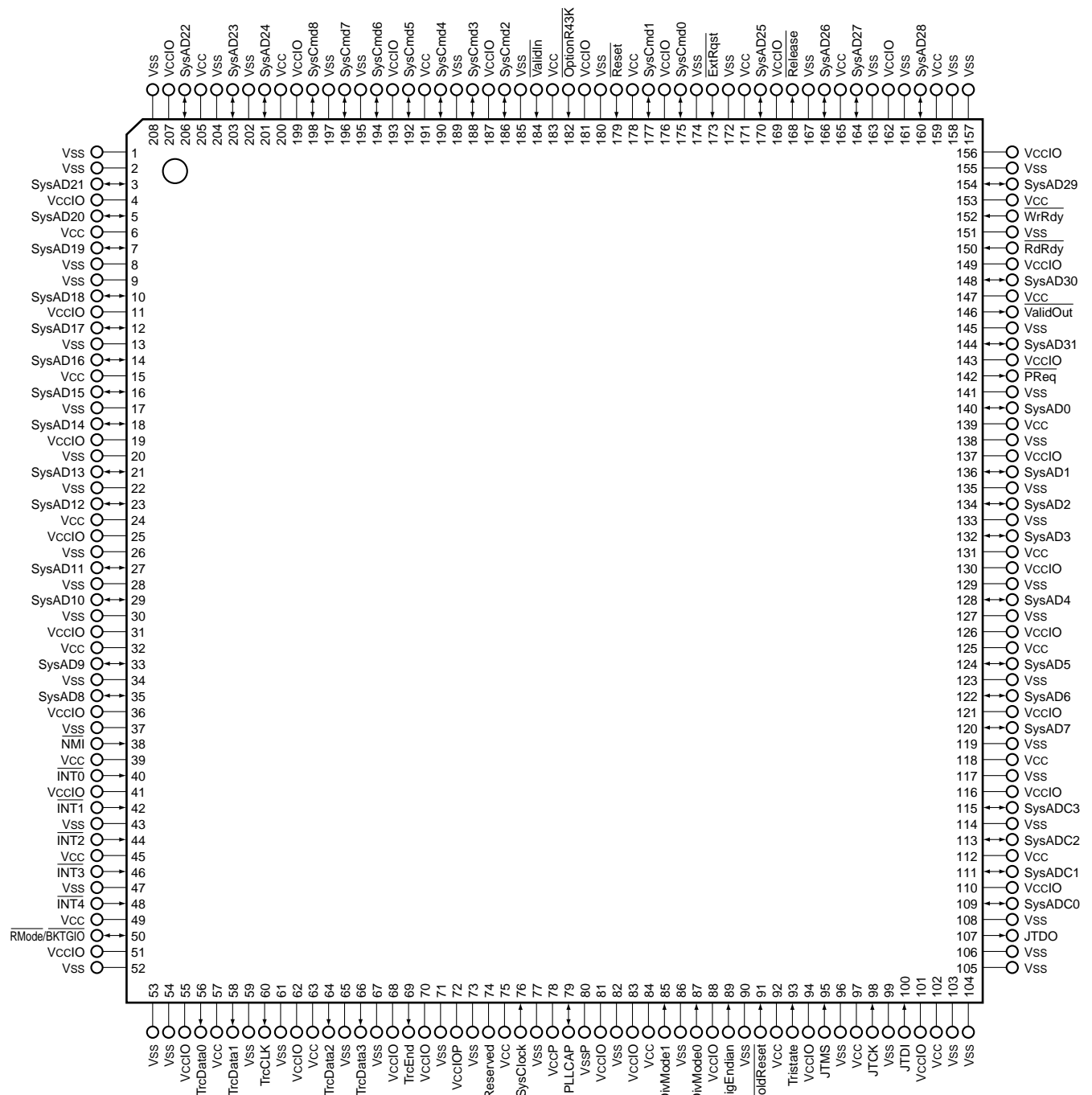
• List of IC

uPD30541GD167H, ICS650R-22, MK2745-27R, MK2745-24S, LM3526M-H, uPD720100AGM-8EY, Si2433-KTR-REVF, Si3015-KSR-REVD, CASC-00003-000, TC74A5-3.3VCT, M41T00M6, AT90SC6464C-AL, ADM101EARM, XC2S15-5TQ144C, MSP4448G-FH-A2, SAA7115HL/V1, FLI2301-BC

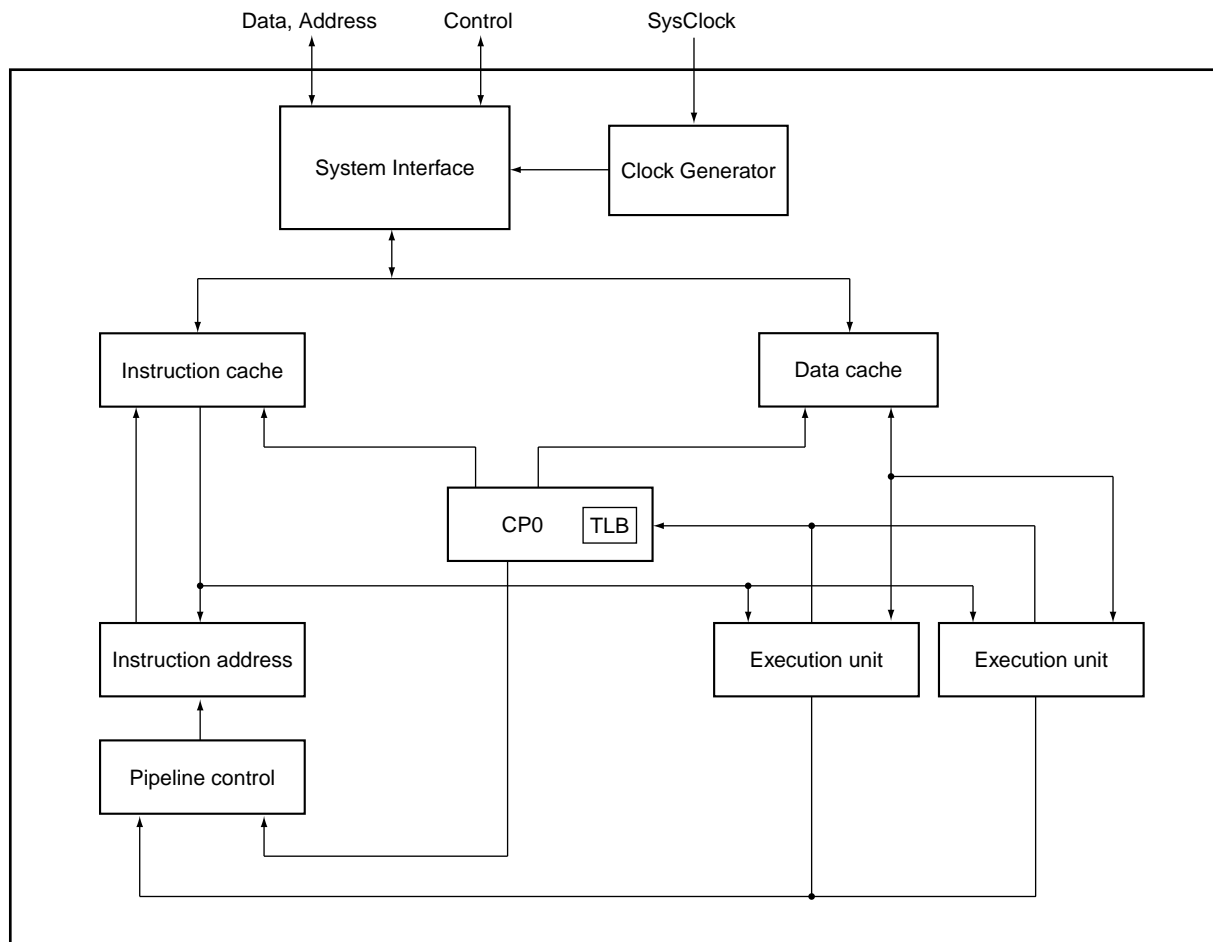
■ uPD30541GD167H (MAIN ASSY : IC1001)

- 64-bit Microprocessor

• Pin Arrangement (Top view)



● Block Diagram



● Pin Function

| No. | Pin Name | Definition | I/O | Function |
|--|---|---|-----|--|
| 173 | $\overline{\text{ExtRqst}}$ / $[\overline{\text{EReq}}]$ | External request (OptionR43K is high) | I | An external agent asserts $\overline{\text{ExtRqst}}$ to request use of the System interface. The processor grants the request by asserting $\overline{\text{Release}}$. |
| | | External request (OptionR43K is low) | | An external agent asserts $\overline{\text{EReq}}$ to request use of the System interface. The processor grants the request by asserting $\overline{\text{PMaster}}$. |
| 168 | $\overline{\text{Release}}$ / $[\overline{\text{PMaster}}]$ | Release interface (OptionR43K is high) | O | In response to the assertion of $\overline{\text{ExtRqst}}$, the processor asserts $\overline{\text{Release}}$, signalling to the requesting device that the System interface is available. $\overline{\text{Release}}$ is also asserted for an uncompleted change to slave state when one or more read requests is outstanding. |
| | | Processor Master (OptionR43K is low) | | Indicates the processor is the master of the System interface bus, and in response to the assertion of $\overline{\text{EReq}}$, the processor asserts $\overline{\text{PMaster}}$, signalling to the requesting device that the System interface is available. $\overline{\text{PMaster}}$ is also asserted for an uncompleted change to slave start when one read requests is outstanding. |
| 142 | $\overline{\text{PReq}}$ / $[\overline{\text{PReq}}]$ | Processor Request (OptionR43K is high) | O | Indicates that the processor has another request that is pending. This is used to indicate that the processor would like to send another transaction. It is up to the external agent to grant the request by releasing the system interface with an external null request. |
| | | Processor Request (OptionR43K is low) | | Indicates the processor is requesting System interface bus ownership. Also, when the processor experiences a protocol error (the processor detects an external agent has violated the SysAD bus protocol), the processor continuously toggles $\overline{\text{PReq}}$. |
| 150 | $\overline{\text{RdRdy}}$ / [Unused] | Read ready (OptionR43K is high) | I | The external agent asserts $\overline{\text{RdRdy}}$ to indicate that it can accept processor read requests. |
| | | Unused (OptionR43K is low) | | The pin is not used when the processor has the interface protocol compatible with VR4300 interface protocol. |
| 144, 148, 154, 160, 164, 166, 170, 201, 203, 206, 3, 5, 7, 10, 12, 14, 16, 18, 21, 23, 27, 29, 33, 35, 120, 122, 124, 128, 132, 134, 136, 140 | SysAD (31 : 0) / [SysAD (31 : 0)] | System address / data bus (OptionR43K is high) | I/O | A 32-bit address and data bus for communication between the processor and an external agent. |
| | | System address / data bus (OptionR43K is low) | | |
| 115, 113, 111, 109 | SysADC (3 : 0) / [SysADC (3 : 0)] | System address / data check bus (OptionR43K is high) | I/O | An 4-bit bus containing parity for the SysAD bus. SysADC is valid on data cycles only. |
| | | Cache test (OptionR43K is low) | | When $\overline{\text{OptionR43K}}$ is set active low. Those pins are used for Cache test only. |
| 198, 196, 194, 192, 190, 188, 186, 177, 175 | SysCmd (8 : 0) / [SysCmd (4 : 0)] | System command / data identifier (OptionR43K is high) | I/O | A 9-bit bus for command and data identifier transmission between the processor and an external agent. |
| | | System command / data identifier (OptionR43K is low) | | A 5-bit bus for command and data identifier transmission between the processor and an external agent. SysCmd (8 : 5) are unused. |

A

| No. | Pin Name | Definition | I/O | Function |
|---|---|---|-----|--|
| 184 | $\overline{\text{ValidIn}}$ / $[\overline{\text{EValid}}]$ | Valid input (OptionR43K is high) | I | The external agent asserts $\overline{\text{ValidIn}}$ when it is driving a valid address or data on the SysAD bus and a valid command or data identifier on the SysCmd bus. |
| | | External Valid input (OptionR43K is low) | | The external agent asserts $\overline{\text{EValid}}$ when it is driving a valid address or data on the SysAD bus and a valid command or data identifier on the SysCmd bus. |
| 146 | $\overline{\text{ValidOut}}$ / $[\overline{\text{PValid}}]$ | Valid output (OptionR43K is high) | O | The processor asserts $\overline{\text{ValidOut}}$ when it is driving a valid address or data on the SysAD bus and a valid command or data identifier on the SysCmd bus to the external agent. |
| | | Processor Valid output (OptionR43K is low) | | The processor asserts $\overline{\text{PValid}}$ when it is driving a valid address or data on the SysAD bus and a valid command or data identifier on the SysCmd bus to the external agent. |
| 152 | $\overline{\text{WrRdy}}$ / $[\overline{\text{EOK}}]$ | Write ready (OptionR43K is high) | I | The external agent asserts $\overline{\text{WrRdy}}$ when it can accept a processor write request. |
| | | External OK for read / write (OptionR43K is low) | | The external agent asserts $\overline{\text{EOK}}$ to indicate that it can accept processor read / write requests. |
| 1, 2, 8, 9, 13, 17, 20, 22, 26, 28, 30, 34, 37, 43, 47, 52, 53, 54, 59, 61, 65, 67, 71, 73, 77, 82, 86, 90, 96, 99, 103, 104, 105, 106, 108, 114, 117, 119, 123, 127, 129, 133, 135, 138, 141, 145, 151, 155, 157, 158, 161, 163, 167, 172, 174, 180, 185, 189, 195, 197, 202, 204, 208 | Vss / [Vss] | Vss for processor Core and Processor I/O | I | Ground for the internal core logic and processor I/O interface. |
| 6, 15, 24, 32, 39, 45, 49, 57, 63, 75, 84, 92, 97, 102, 112, 118, 125, 131, 139, 147, 153, 159, 165, 171, 178, 183, 191, 200, 205 | Vcc / [Vcc] | Vcc for Processor Core | I | 2.5V power for the internal core logic. |
| 4, 11, 19, 25, 31, 36, 41, 51, 55, 62, 68, 70, 81, 83, 88, 94, 101, 110, 116, 121, 126, 130, 137, 143, 149, 156, 162, 169, 176, 181, 187, 193, 199, 207 | VccIO / [VccIO] | Vcc for Processor I/O | I | 3.3V power for the processor I/O interface. |

B

C

D

E

F

| No. | Pin Name | Definition | I/O | Function | | | | | | | | | |
|--------------------|---|---|-----|--|-------|----|-------|----|-------|----|---------|----|-------|
| 76 | SysClock / [MasterClock] | System Clock (OptionR43K is high) | I | System clock (SysClock) input that establishes the system interface operating frequency and phase during normal operation. | | | | | | | | | |
| | | System Clock (OptionR43K is low) | | System clock (MasterClock) input that establishes the system interface operating frequency and phase during normal operation. | | | | | | | | | |
| 78 | VccP / [VccP] | Quiet VCC for PLL (Independent from OptionR43K) | I | Quiet VCC for the internal phase locked loop. This is 2.5V power. Each internal PLL requires a quiet VCC. | | | | | | | | | |
| 80 | VssP / [VssP] | Quiet VSS for PLL (Independent from OptionR43K) | I | Quiet VSS for the internal phase locked loop. Each internal PLL requires a quiet VSS. | | | | | | | | | |
| 79 | PLLCAP / [PLLCAP] | PLL capacitor (Independent from OptionR43K) | I | A resistor/capacitor network is connected between PLLCAP and VssP to ensure the proper operation of the phase-lock loop. | | | | | | | | | |
| 48, 46, 44, 42, 40 | $\overline{\text{Int}} (4 : 0) / [\overline{\text{Int}} (4 : 0)]$ | Interrupt (Independent from OptionR43K) | I | General processor interrupts, bit-wise ORed with bits 4:0 of the interrupt register. | | | | | | | | | |
| 38 | $\overline{\text{NMI}} / [\overline{\text{NMI}}]$ | Non-maskable interrupt (Independent from OptionR43K) | I | Non-maskable interrupt, ORed with bit 6 of the interrupt register. | | | | | | | | | |
| 182 | $\overline{\text{OptionR43K}}$ | Vr4300™ Mode | I | When $\overline{\text{OptionR43K}}$ is set active low. The Vr5432 operates with the Vr4300-protocol. | | | | | | | | | |
| 85, 87 | DivMode (1 : 0) / [DivMode (1 : 0)] | Divide Mode (Independent from OptionR43K) | I | Set the PClock to SysClock ratio. | | | | | | | | | |
| | | | | DivMode (1 : 0) | Ratio | 11 | 4 : 1 | 10 | 3 : 1 | 01 | 2.5 : 1 | 00 | 2 : 1 |
| | | | | DivMode (1 : 0) | Ratio | | | | | | | | |
| | | | | 11 | 4 : 1 | | | | | | | | |
| | | | | 10 | 3 : 1 | | | | | | | | |
| 01 | 2.5 : 1 | | | | | | | | | | | | |
| 00 | 2 : 1 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 89 | BigEndian / [BigEndian] | Endian mode select (Independent from OptionR43K) | I | Sets Vr5432 addressing mode to either Big Endian or Little Endian. | | | | | | | | | |
| 91 | $\overline{\text{ColdReset}} / [\text{ColdReset}]$ | Cold reset (Independent from OptionR43K) | I | This signal must be asserted for a power on reset or a cold reset. ColdReset must be deasserted synchronously with SysClock. | | | | | | | | | |
| 179 | $\overline{\text{Reset}} / [\overline{\text{Reset}}]$ | Reset (Independent from OptionR43K) | I | This signal must be asserted for any reset sequence. It can be asserted synchronously or asynchronously for a cold reset, or snchronously to initiate a warm reset. Reset must be deasserted synchronously with SysClock. | | | | | | | | | |
| 66, 64, 58, 56 | TrcData (3 : 0) / [TrcData (3 : 0)] | Trace Data Port (Independent from OptionR43K) | O | This bus is used to output all trace data codes generated as a result of processor execution. | | | | | | | | | |
| 69 | TrcEnd / [TrcEnd] | Trace End (Independent from OptionR43K) | O | Assertion of this signal indicates the end of a trace data packet from the TrcData port. Trace packets can consist of a signal clock cycle of data from the TrcData port, or multiple cycles of data from the TrcData port. | | | | | | | | | |
| 60 | TrcClk / [TrcClk] | Trace Clock (Independent from OptionR43K) | O | The Trace clock is the same as the System Clock. This output is generated for the benefit of test equipment that require the clock reference for trace information. | | | | | | | | | |
| 50 | $\overline{\text{RMode}} / \overline{\text{BKTGIO}} / [\text{RMode} / \text{BKTGIO}]$ | Reset Mode Break, Trigger I/O (Independent from OptionR43K) | I/O | This pin supports the N-Wire reset mode, as well as break and trigger functions. This pin is RMode until ColdReset is deasserted. It is then BKTGIO and serves as a break or trigger, as well as an input or output depending on the setup in various Debug Registers. | | | | | | | | | |

A

| No. | Pin Name | Definition | I/O | Function |
|-----|-----------------------|---|-----|--|
| 93 | Tristate / [Tristate] | 3-state all outputs (Independent from OptionR43K) | I | This signal 3-states all VR5432 outputs to allow board level test to isolate the VR5432 processor. |
| 100 | JTDI / [JTDI] | Test Data in (Independent from OptionR43K) | I | Data is serially scanned in through this pin. |
| 98 | JTCK / [JTCK] | Test Clock input (Independent from OptionR43K) | I | The processor accepts a serial clock on JTCK. On the rising edge of JTCK, both JTDI and JTMS are sampled. The maximum frequency of JTCK is 33 MHz, and it runs asynchronously to the SysClock. |
| 107 | JTDO / [JTDO] | Test Data Out (Independent from OptionR43K) | O | Data is serially scanned out through this pin on the falling edge of JTCK. |
| 95 | JTMS / [JTMS] | Test Mode Select (Independent from OptionR43K) | I | JTAG Test Mode Select signal. |

B

C

D

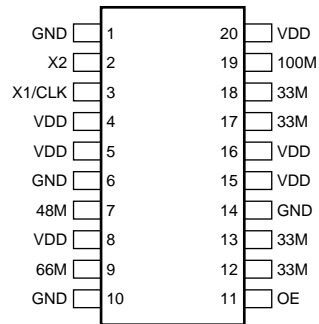
E

F

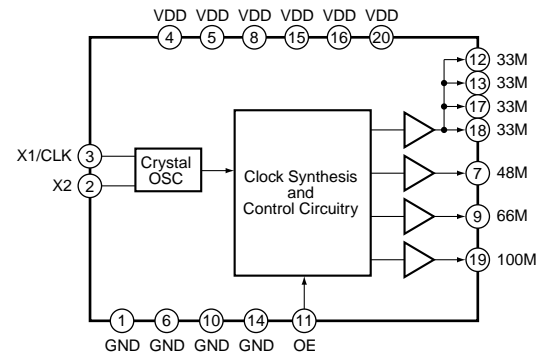
ICS650R-22 (MAIN ASSY : IC1101)

- STB Clock Source

• Pin Arrangement (Top view)



• Block Diagram



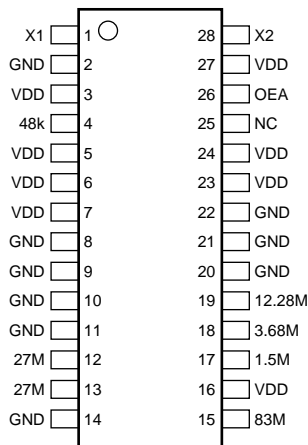
• Pin Function

| No. | Pin Name | I/O | Function |
|--------|----------|-----|---|
| 1 | GND | – | Connect to ground. |
| 2 | X2 | I | Connect to a crystal input or leave open for ICLK. |
| 3 | X1/CLK | I | Connect to a crystal or reference clock input. |
| 4, 5 | VDD | – | Connect to +3.3V. |
| 6 | GND | – | Connect to ground. |
| 7 | 48M | O | 48 MHz clock output. |
| 8 | VDD | – | Connect to +3.3V. |
| 9 | 66M | O | 66 MHz clock output. |
| 10 | GND | – | Connect to ground. |
| 11 | OE | I | Output enable active high. Internal pull-up resistor. |
| 12, 13 | 33M | O | 33.33 MHz clock output. |
| 14 | GND | – | Connect to ground. |
| 15, 16 | VDD | – | Connect to +3.3V. |
| 17, 18 | 33M | O | 33.33 MHz clock output. |
| 19 | 100M | O | 100 MHz clock output. |
| 20 | VDD | – | Connect to +3.3V |

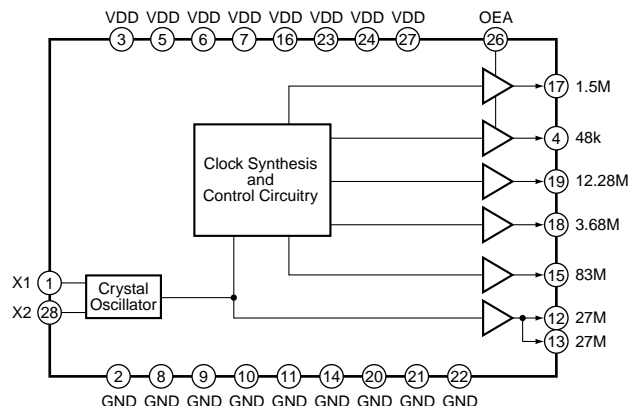
■ MK2745-27R (MAIN ASSY : IC1102)

- Set-top Box Clock Generator

● Pin Arrangement (Top view)



● Block Diagram



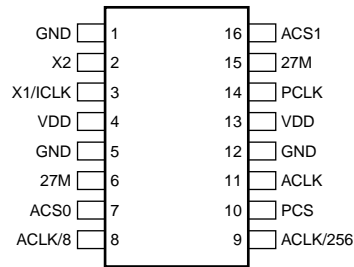
● Pin Function

| No. | Pin Name | I/O | Function |
|-----|----------|-----|--|
| 1 | X1 | — | Crystal connection. Connect to 27 MHz fundamental mode crystal or clock input. |
| 2 | GND | — | Connect to ground. |
| 3 | VDD | — | Power supply. Connect to +3.3V. |
| 4 | 48k | O | 48 kHz output. |
| 5 | VDD | — | Power supply. Connect to +3.3V. |
| 6 | VDD | — | Power supply. Connect to +3.3V. |
| 7 | VDD | — | Power supply. Connect to +3.3V. |
| 8 | GND | — | Connect to ground. |
| 9 | GND | — | Connect to ground. |
| 10 | GND | — | Connect to ground. |
| 11 | GND | — | Connect to ground. |
| 12 | 27M | O | 27 MHz output. |
| 13 | 27M | O | 27 MHz output. |
| 14 | GND | — | Connect to ground. |
| 15 | 83M | O | 83.333 MHz clock output. |
| 16 | VDD | — | Power supply. Connect to +3.3V. |
| 17 | 1.5M | O | 1.536 MHz output. |
| 18 | 3.68M | O | 3.6864 MHz output. |
| 19 | 12.28M | O | 12.288 MHz output. |
| 20 | GND | — | Connect to ground. |
| 21 | GND | — | Connect to ground. |
| 22 | GND | — | Connect to ground. |
| 23 | VDD | — | Power supply. Connect to +3.3V. |
| 24 | VDD | — | Power supply. Connect to +3.3V. |
| 25 | NC | — | Do not connect anything to this pin. |
| 26 | OEA | I | Output enable (tristate pin 17 and pin 4 when low) |
| 27 | VDD | — | Power supply. Connect to +3.3V. |
| 28 | X2 | — | Crystal connection, or leave unconnected for clock input. |

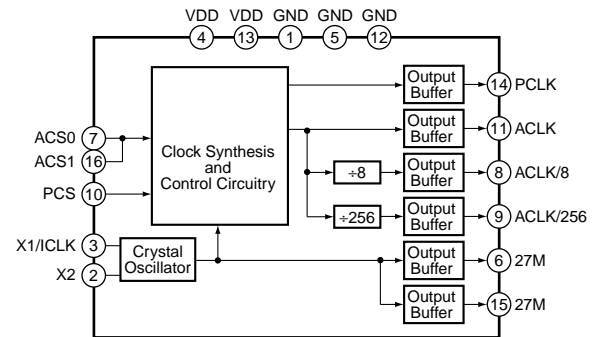
■ MK2745-24S (MAIN ASSY : IC1103)

- DVD/MPEG Clock Source

● Pin Arrangement (Top view)



- **Block Diagram**



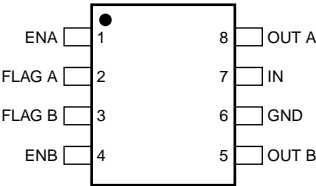
- **Pin Function**

| No. | Pin Name | I/O | Function |
|-----|----------|-----|---|
| 1 | GND | – | Connect to ground. |
| 2 | X2 | O | Crystal connection. Connect to 27 MHz crystal. Leave unconnected for clock input. |
| 3 | X1/ICLK | I | Crystal connection. Connect to 27 MHz crystal or connect to 27 MHz input clock. |
| 4 | VDD | – | Connect to +3.3V or +5V. Must be same as other VDD. |
| 5 | GND | – | Connect to ground. |
| 6 | 27M | O | 27.00 MHz clock input. |
| 7 | ACS0 | I | Audio clock select 0. |
| 8 | ACLK/8 | O | Audio clock divided by 8 output. Determined by status of ACS1, ACS0. |
| 9 | ACLK/256 | O | Audio clock divided by 256 output. Determined by status of ACS1, ACS0. |
| 10 | PCS | I | Processor Clock Select pin. |
| 11 | ACLK | O | Audio clock output. Determined by status of ACS1, ACS0. |
| 12 | GND | – | Connect to ground. |
| 13 | VDD | – | Connect to +3.3V or +5V. Must be same as other VDD. |
| 14 | PCLK | O | Processor Clock output. Determined by status of PCS. |
| 15 | 27M | O | 27.00 MHz clock output. |
| 16 | ACS1 | I | Audio Clock Select 1. |

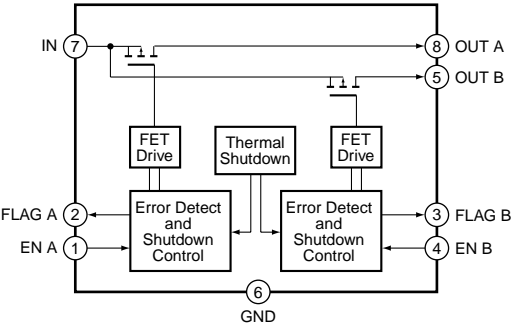
LM3526M-H (MAIN ASSY : IC3001)

- Dual Port USB Power Switch and Over-Current Protection

● Pin Arrangement (Top view)



● Block Diagram



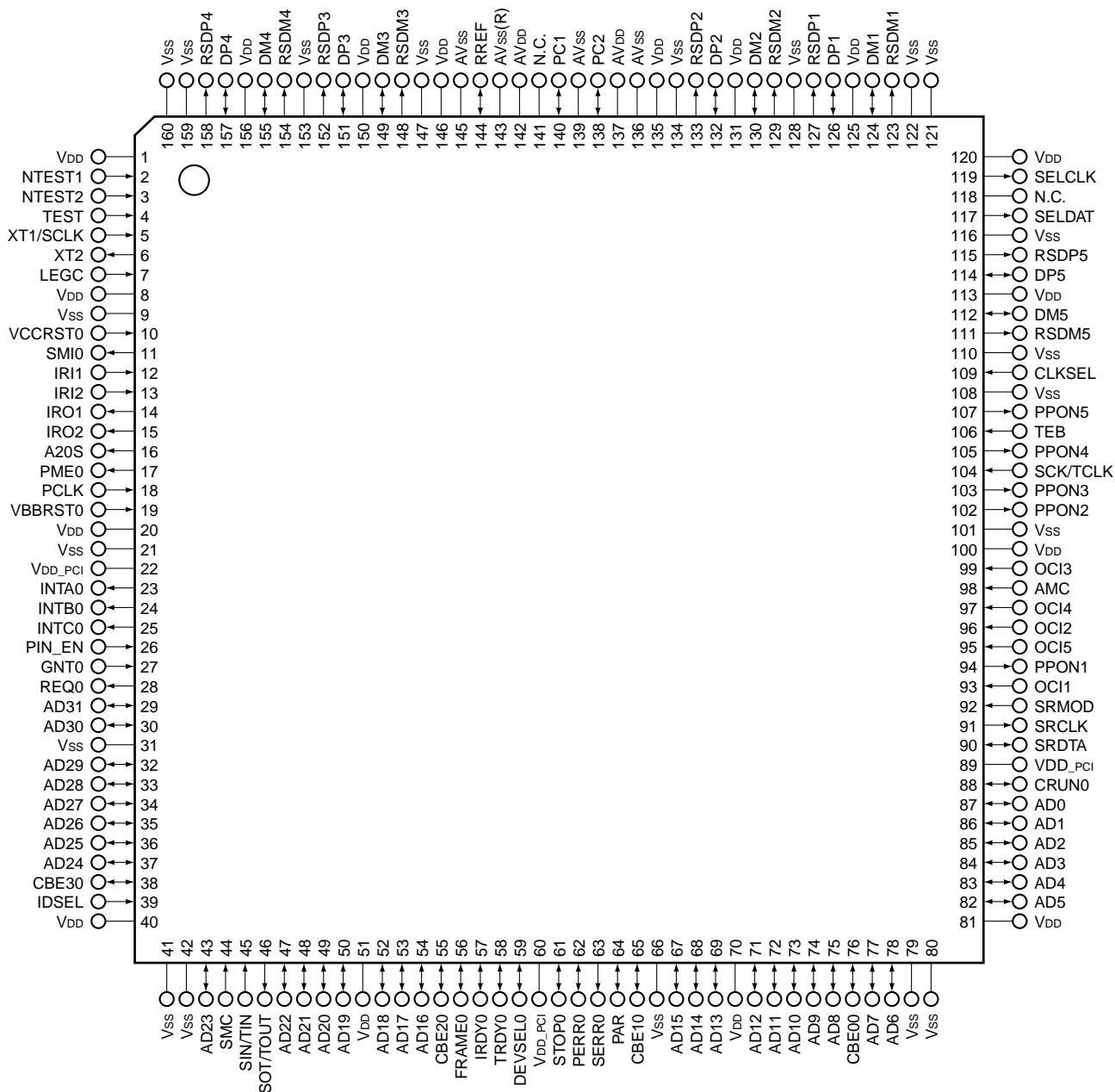
● Pin Function

| No. | Pin Name | I/O | Function |
|-----|----------|-----|---|
| 1 | ENA | I | Enable (Input) : Logic-compatible enable input. |
| 2 | FLAG A | O | Fault Flag (Output) : Active-low, open-drain output. Indicates overcurrent, UVLO or thermal shutdown. |
| 3 | FLAG B | O | Fault Flag (Output) : Active-low, open-drain output. Indicates overcurrent, UVLO or thermal shutdown. |
| 4 | ENB | I | Enable (Input) : Logic-compatible enable input. |
| 5 | OUT B | O | Switch output : This pin is the output of the high side switch. |
| 6 | GND | – | Ground |
| 7 | IN | I | Supply input : This pin is the input to the power switch and the supply voltage for the IC. |
| 8 | OUT A | O | Switch output : This pin is the output of the high side switch. |

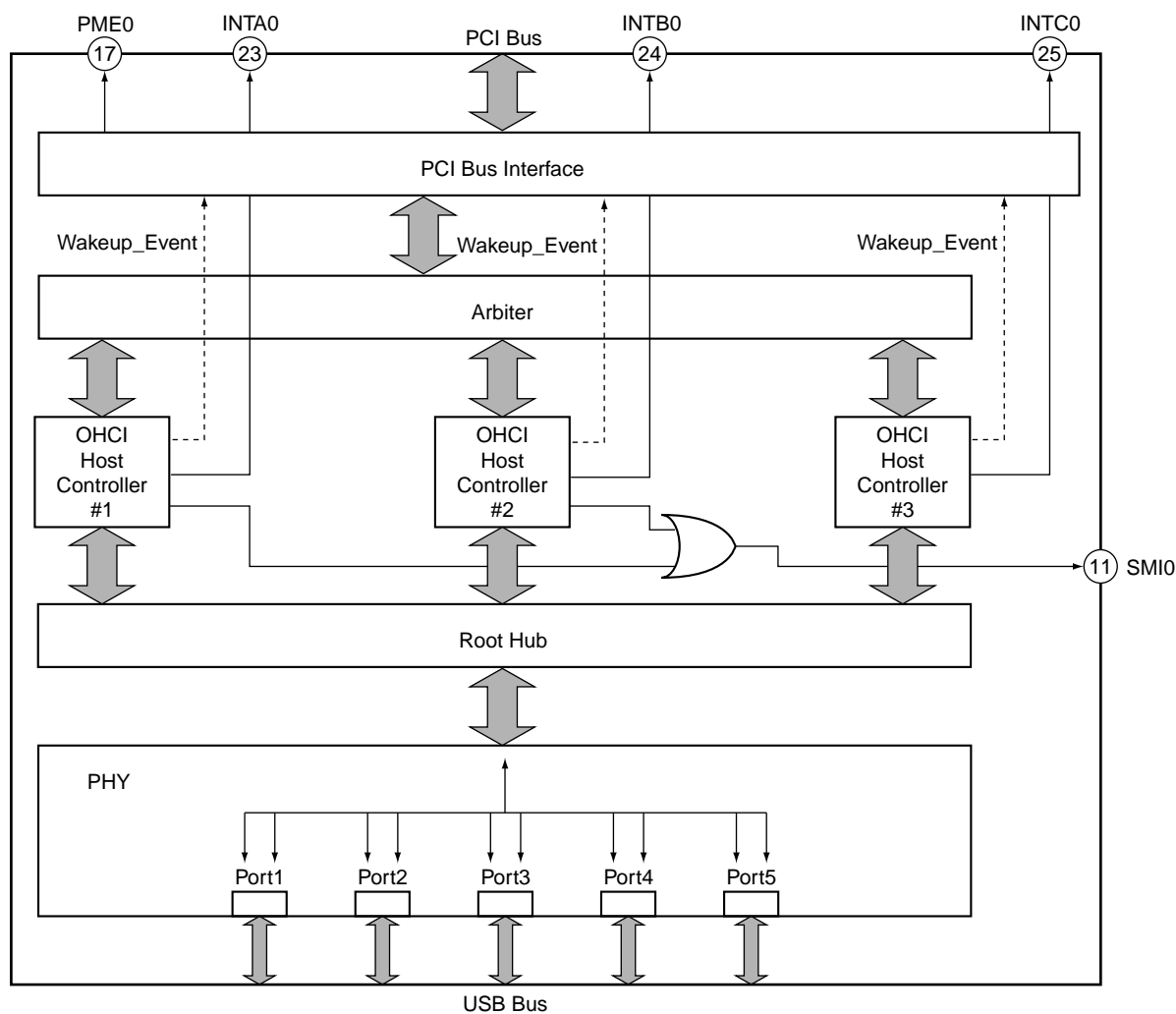
uPD720100AGM-8EY (MAIN ASSY : IC3002)

- USB 2.0 Host Controller

● Pin Arrangement (Top view)



● Block Diagram



● Pin Function

■ Power supply

| No. | Pin Name | I/O | Function |
|---|----------|-----|---------------------------------------|
| 1, 8, 20, 40, 51, 70, 81, 100, 113, 120, 125, 131, 135, 146, 150, 156 | VDD | – | +3.3V power supply |
| 22, 60, 89 | VDD_PCI | – | +5V for 5V PCI or +3.3V for 3.3V PCI |
| 137, 142 | AVDD | – | +3.3V power supply for analog circuit |
| 9, 21, 31, 41, 42, 66, 79, 80, 101, 108, 110, 116, 121, 122, 128, 134, 147, 153, 159, 160 | Vss | – | Ground |
| 136, 139, 143, 145 | AVss | – | Ground for analog circuit |
| 118, 141 | N.C. | – | No Connection |

■ Analog signaling

| No. | Pin Name | I/O | Function |
|-----|----------|-----|---|
| 144 | RREF | – | RREF must be connected a 1% precision reference resistor of 9.1 kΩ. The other side of resistor must be connected to local ground. |
| 140 | PC1 | – | PC1 is used for PLL function. Should be left open on circuit board. |
| 138 | PC2 | – | PC2 is used for PLL function. Should be left open on circuit board. |

■ PCI interface

| No. | Pin Name | I/O | Function |
|--|-------------|-----|---------------------------|
| 29, 30, 32-37, 43, 47-50, 52-54, 67-69, 71-75, 77, 78, 82-87 | AD (31 : 0) | I/O | PCI "AD [31 : 0]" signal |
| 38, 55, 65, 76 | CBE (3 : 0) | I/O | PCI "C/BE [3 : 0]" signal |
| 64 | PAR | I/O | PCI "PAR" signal |
| 56 | FRAME0 | I/O | PCI "FRAME#" signal |
| 57 | IRDY0 | I/O | PCI "IRDY#" signal |
| 58 | TRDY0 | I/O | PCI "TRDY#" signal |
| 61 | STOP0 | I/O | PCI "STOP#" signal |
| 39 | IDSEL | I | PCI "IDSEL" signal |
| 59 | DEVSEL0 | I/O | PCI "DEVSEL#" signal |
| 28 | REQ0 | O | PCI "REQ#" signal |
| 27 | GNT0 | I | PCI "GNT#" signal |
| 62 | PERR0 | I/O | PCI "PERR#" signal |
| 63 | SERR0 | O | PCI "SERR#" signal |
| 23 | INTA0 | O | PCI "INTA#" signal |
| 24 | INTB0 | O | PCI "INTB#" signal |
| 25 | INTC0 | O | PCI "INTC#" signal |
| 18 | PCLK | I | PCI "CLK" signal |
| 19 | VBBRST0 | I | Hardware Reset for Chip |
| 88 | CRUN0 | I/O | PCI "CLKRUN#" signal |
| 17 | PME0 | O | PCI "PME#" signal |
| 26 | PIN_EN | I | PCI Interface enable |

■ System clock & reset for power management

| No. | Pin Name | I/O | Function |
|-----|----------|-----|--|
| 5 | XT1/SCLK | I | System clock input or Oscillator input Apply 48 MHz clock input or connect 30 MHz X'tal. Clock frequency is selected by "CLKSEL" signal. |
| 6 | XT2 | O | IF 48 MHz clock input is applied to SCLK, this signal must be opened. Otherwise, connect to 30 MHz X'tal. Clock frequency is selected by "CLKSEL" signal. |
| 10 | VCCRST0 | I | Reset for Power management. |

■ USB interface

| No. | Pin Name | I/O | Function |
|-------------------------|--------------|-----|--|
| 114, 157, 151, 132, 126 | DP (5 : 1) | I/O | USB's D+ high-speed signal Shared with DMx pins having the same numbers. |
| 115, 158, 152, 133, 127 | RSDP (5 : 1) | O | USB's D+ full-speed signal Connected to DPx through 36 Ω 5% precision Rs resistor. |
| 112, 155, 149, 130, 124 | DM (5 : 1) | I/O | USB's D- high-speed signal Shared with DPx pins having the same numbers. |
| 111, 154, 148, 129, 123 | RSDM (5 : 1) | O | USB's D- full-speed signal Connected to DMx through 36 Ω 5% precision Rs resistor. |
| 95, 97, 99, 96, 93 | OCI (5 : 1) | I | Pin for inputting the overcurrent status of the USB Root Hub Port 1 : No power supply problem 2 : Overcurrent has occurred |
| 107, 105, 103, 102, 94 | PPON (5 : 1) | O | Power supply control output for USB Root Hub Port 0 : Power supply OFF 1 : Power supply ON |

■ System interface

| No. | Pin Name | I/O | Function |
|-----|----------|-----|--|
| 11 | SMI0 | O | System management interrupt output 0 : Interrupt occurs 1 : Interrupt does not occur |
| 109 | CLKSEL | I | Clock signal select 1 : XT1/SCLK must be applied 48 MHz clock input 0 (Default) : XT1/SCLK must be connected to 30 MHz X'tal |
| 91 | SRCLK | O | Serial ROM Clock out |
| 90 | SRDTA | I/O | Serial ROM Data |
| 92 | SRMOD | I | Serial ROM Input Enable 0 (Default) : Serial ROM Inactive 1 : Serial ROM Active |

| Chip clock type | CLKSEL | On board setting |
|------------------------|--------|--|
| Use 48 MHz clock input | 1 | 48 MHz clock signal supply to XT1/SCLK on board |
| Use 30 MHz Oscillator | 0 | 30 MHz X'tal connects between XT1/SCLK and XT2. Also, the capacitor and some other element must be required. |

■ Legacy support interface

| No. | Pin Name | I/O | Function |
|-----|----------|-----|---|
| 7 | LEGC | I | Legacy support switch 0 : Legacy OFF 1 : Legacy ON When off, "L" clamp IRI1 and IRI2 and leave IRO1, IRO2 and A20S open. |
| 12 | IRI1 | I | INT input from keyboard : active high |
| 13 | IRI2 | I | INT input from mouse : active high |
| 14 | IRO1 | O | INT output from keyboard : active high |
| 15 | IRO2 | O | INT output from mouse : active high |
| 16 | A20S | O | Gate A20S State output |

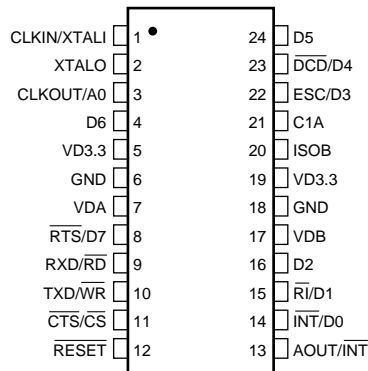
■ Test signals

| No. | Pin Name | I/O | Function |
|------|---------------|-----|---------------------------------------|
| 44 | SMC | I | Should be left open on circuit board. |
| 45 | SIN/TIN | I | Should be left open on circuit board. |
| 46 | SOT/TOUT | O | Should be left open on circuit board. |
| 104 | SCK/TCLK | I | Should be left open on circuit board. |
| 98 | AMC | I | Should be left open on circuit board. |
| 119 | SELCLK | O | Should be left open on circuit board. |
| 117 | SELDAT | O | Should be left open on circuit board. |
| 106 | TEB | I | Should be left open on circuit board. |
| 4 | TEST | I | Should be left open on circuit board. |
| 2, 3 | NTEST (2 : 1) | I | Should be left open on circuit board. |

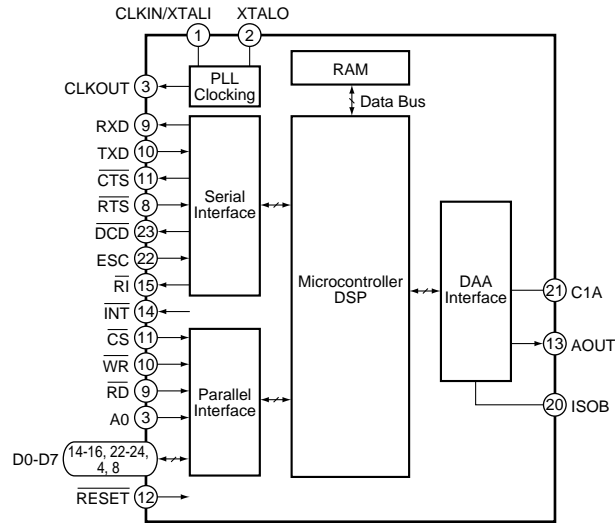
Si2433-KTR-REVF (MAIN ASSY : IC3101)

• V.90, V.34, V.32 BIS ISO Modem with Integrated Grobal DAA

● Pin Arrangement (Top view)



● Block Diagram



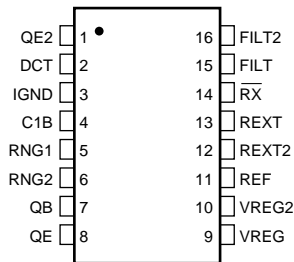
● Pin Function

| No. | Pin Name | Function |
|-------|-------------|---|
| 1 | CLKIN/XTALI | Clock Input/Crystal Oscillator Pin. This pin provides support for parallel-resonant, AT-cut crystals. XTALI also acts as an input in the event that an external clock source is used in place of a crystal. A 4.9152 MHz crystal or 4.9152 MHz clock is required. |
| 2 | XTALO | Crystal Oscillator Pin. This pin provides support for parallel-resonant AT-cut crystals. XTALO serves as the output of the crystal amplifier. |
| 3 | CLKOUT/A0 | Clock Output/Address Bit 0. Clock output in serial mode. Address Enable in parallel mode. |
| 4 | D6 | Data Bit. Bidirectional parallel bus data bit 6 in parallel mode. |
| 5, 19 | VD3.3 | Digital Supply Voltage. Provides the 3.3V digital supply voltage to the Si2433. |
| 6, 18 | GND | Ground. Connect to the system digital ground. |
| 7, 17 | VDA, VDB | Digital Rail. Pin provides additional power supply voltage to the Si2433. |
| 8 | RTS/D7 | Request-to-Send/Data Bit. Request-to-send (for flow control) in serial mode. Bidirectional parallel bus data bit 7 in parallel mode. |
| 9 | RXD/RD | Receive Data/Read Enable. Data output to DTE RXD pin in serial mode. Active low read enable pin in parallel mode. |
| 10 | TXD/RW | Transmit Data/Write Enable. Data input from DTE TXD pin in serial mode. Active low write enable pin in parallel mode. |
| 11 | CTS/CS | Clear-to-Send/Chip Select. Active low clear-to-send (for flow control) in serial mode. Active low chip select in parallel mode. |
| 12 | RESET | Reset Input. An active low input that is used to reset all control registers to a defined initialized state. |
| 13 | AOUT/INT | Analog Output/Interrupt Output. Analog output in serial mode. Active low interrupt output in parallel mode. |
| 14 | INT/D0 | Interrupt Output/Data Bit. Active low interrupt output in serial mode. Bidirectional parallel bus data bit 0 in parallel mode. |
| 15 | RI/D1 | Ring Indicator/Data Bit. The RI on (active low) indicates the presence of an ON segment of a ring signal on the telephone line. Bidirectional parallel bus data bit 1 in parallel mode. |
| 16 | D2 | Data Bit. Bidirectional parallel bus data bit 2 in parallel mode. |
| 20 | ISOB | Isolink Bias Voltage. This pin should be connected via the C3 capacitor. |
| 21 | C1A | Isolation Capacitor 1A. Connects to one side of the isolation capacitor C1. |
| 22 | ESC/D3 | Escape/Data Bit. Hardware escape in serial mode. Bidirectional parallel bus data bit 3 in parallel mode. |
| 23 | DCD/D4 | Carrier Detect/Data Bit. Active low carrier detect in serial mode. Bidirectional parallel bus data bit 4 in parallel mode. |
| 24 | D5 | Data Bit. Bidirectional parallel bus data bit 5 in parallel mode. |

■ Si3015-KSR-REVD (MAIN ASSY : IC3201)

- V.90, V.34, V.32 BIS ISO Modem with Integrated Global DAA

● Pin Arrangement (Top view)

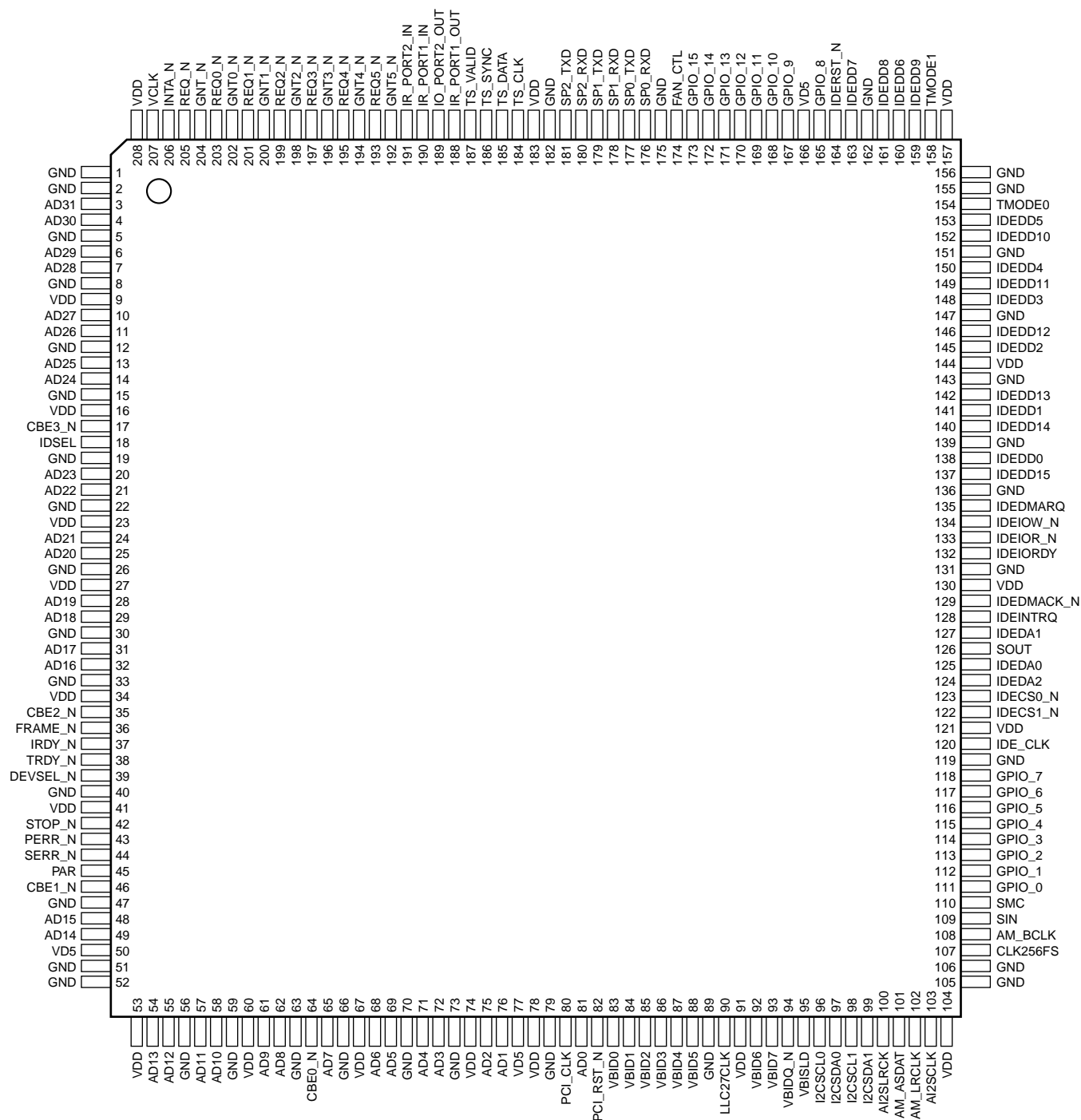


● Pin Function

| No. | Pin Name | Function |
|-----|------------------------|---|
| 1 | QE2 | Transistor Emitter 2. Connects to the emitter of Q4. |
| 2 | DCT | DC Termination. Provides DC termination to the telephone network. |
| 3 | IGND | Isolated Ground. Connects to ground on the line-side interface. Also connects to capacitor C2. |
| 4 | C1B | Isolation Capacitor 1B. Connects to one side of isolation capacitor C1. |
| 5 | RNG1 | Ring 1. Connects through a capacitor to the TIP lead of the telephone line. Provides the ring and caller ID signals to the modem. |
| 6 | RNG2 | Ring 2. Connects through a capacitor to the RING lead of the telephone line. Provides the ring and caller ID signals to the modem. |
| 7 | QB | Transistor Base. Connects to the base of transistor Q3. |
| 8 | QE | Transistor Emitter. Connects to the emitter of transistor Q3. |
| 9 | VREG | Voltage Regulator. Connects to an external capacitor to provide bypassing for an internal power supply. |
| 10 | VREG2 | Voltage Regulator 2. Connects to an external capacitor to provide bypassing for an internal power supply. |
| 11 | REF | Reference. Connects to an external resistor to provide a high-accuracy reference current. |
| 12 | REXT2 | External Resistor 2. Sets the complex AC termination impedance. |
| 13 | REXT | External Resistor. Sets the real AC termination impedance. |
| 14 | $\overline{\text{RX}}$ | Receive Input. Serves as the receive side input from the telephone network. |
| 15 | FILT | Filter. Provides filtering for the DC termination circuits. |
| 16 | FILT2 | Filter 2. Provides filtering for the DC bias circuits. |

CASC-00003-000 (MAIN ASSY : IC4001)

- Media Switch (ASIC)

Pin Arrangement (Top view)

● Pin Function

| No. | Pin Name | I/O | Function |
|-----|----------|-----|----------------------|
| 1 | GND | – | Ground |
| 2 | GND | – | Ground |
| 3 | AD31 | B | 5V PCI I/O Buffer |
| 4 | AD30 | B | 5V PCI I/O Buffer |
| 5 | GND | – | Ground |
| 6 | AD29 | B | 5V PCI I/O Buffer |
| 7 | AD28 | B | 5V PCI I/O Buffer |
| 8 | GND | – | Ground |
| 9 | VDD | – | Power supply |
| 10 | AD27 | B | 5V PCI I/O Buffer |
| 11 | AD26 | B | 5V PCI I/O Buffer |
| 12 | GND | – | Ground |
| 13 | AD25 | B | 5V PCI I/O Buffer |
| 14 | AD24 | B | 5V PCI I/O Buffer |
| 15 | GND | – | Ground |
| 16 | VDD | – | Power supply |
| 17 | CBE3_N | B | 5V PCI I/O Buffer |
| 18 | IDSEL | I | 5V PCI Input Buffer |
| 19 | GND | – | Ground |
| 20 | AD23 | B | 5V PCI I/O Buffer |
| 21 | AD22 | B | 5V PCI I/O Buffer |
| 22 | GND | – | Ground |
| 23 | VDD | – | Power supply |
| 24 | AD21 | B | 5V PCI I/O Buffer |
| 25 | AD20 | B | 5V PCI I/O Buffer |
| 26 | GND | – | Ground |
| 27 | VDD | – | Power supply |
| 28 | AD19 | B | 5V PCI I/O Buffer |
| 29 | AD18 | B | 5V PCI I/O Buffer |
| 30 | GND | – | Ground |
| 31 | AD17 | B | 5V PCI I/O Buffer |
| 32 | AD16 | B | 5V PCI I/O Buffer |
| 33 | GND | – | Ground |
| 34 | VDD | – | Power supply |
| 35 | CBE2_N | B | 5V PCI I/O Buffer |
| 36 | FRAME_N | B | 5V PCI I/O Buffer |
| 37 | IRDY_N | B | 5V PCI I/O Buffer |
| 38 | TRDY_N | B | 5V PCI I/O Buffer |
| 39 | DEVSEL_N | B | 5V PCI I/O Buffer |
| 40 | GND | – | Ground |
| 41 | VDD | – | Power supply |
| 42 | STOP_N | B | 5V PCI I/O Buffer |
| 43 | PERR_N | B | 5V PCI I/O Buffer |
| 44 | SERR_N | O | 5V PCI Output Buffer |
| 45 | PAR | B | 5V PCI I/O Buffer |
| 46 | CBE1_N | B | 5V PCI I/O Buffer |
| 47 | GND | – | Ground |
| 48 | AD15 | B | 5V PCI I/O Buffer |
| 49 | AD14 | B | 5V PCI I/O Buffer |
| 50 | VD5 | – | |

A

| No. | Pin Name | I/O | Function |
|-----|-----------|-----|---|
| 51 | GND | – | Ground |
| 52 | GND | – | Ground |
| 53 | VDD | – | Power supply |
| 54 | AD13 | B | 5V PCI I/O Buffer |
| 55 | AD12 | B | 5V PCI I/O Buffer |
| 56 | GND | – | Ground |
| 57 | AD11 | B | 5V PCI I/O Buffer |
| 58 | AD10 | B | 5V PCI I/O Buffer |
| 59 | GND | – | Ground |
| 60 | VDD | – | Power supply |
| 61 | AD9 | B | 5V PCI I/O Buffer |
| 62 | AD8 | B | 5V PCI I/O Buffer |
| 63 | GND | – | Ground |
| 64 | CBE0_N | B | 5V PCI I/O Buffer |
| 65 | AD7 | B | 5V PCI I/O Buffer |
| 66 | GND | – | Ground |
| 67 | VDD | – | Power supply |
| 68 | AD6 | B | 5V PCI I/O Buffer |
| 69 | AD5 | B | 5V PCI I/O Buffer |
| 70 | GND | – | Ground |
| 71 | AD4 | B | 5V PCI I/O Buffer |
| 72 | AD3 | B | 5V PCI I/O Buffer |
| 73 | GND | – | Ground |
| 74 | VDD | – | Power supply |
| 75 | AD2 | B | 5V PCI I/O Buffer |
| 76 | AD1 | B | 5V PCI I/O Buffer |
| 77 | VD5 | – | |
| 78 | VDD | – | Power supply |
| 79 | GND | – | Ground |
| 80 | PCI_CLK | I | 5V PCI Input Buffer |
| 81 | AD0 | B | 5V PCI I/O Buffer |
| 82 | PCI_RST_N | I | 5V PCI Input Buffer |
| 83 | VBID0 | B | LVTTL I/O Buffer (Low-noise : IoL = 6 mA) with pull-down resistor 50K |
| 84 | VBID1 | B | LVTTL I/O Buffer (Low-noise : IoL = 6 mA) with pull-down resistor 50K |
| 85 | VBID2 | B | LVTTL I/O Buffer (Low-noise : IoL = 6 mA) with pull-down resistor 50K |
| 86 | VBID3 | B | LVTTL I/O Buffer (Low-noise : IoL = 6 mA) with pull-down resistor 50K |
| 87 | VBID4 | B | LVTTL I/O Buffer (Low-noise : IoL = 6 mA) with pull-down resistor 50K |
| 88 | VBID5 | B | LVTTL I/O Buffer (Low-noise : IoL = 6 mA) with pull-down resistor 50K |
| 89 | GND | – | Ground |
| 90 | LLC27CLK | I | FI01 |
| 91 | VDD | – | Power supply |
| 92 | VBID6 | B | LVTTL I/O Buffer (Low-noise : IoL = 6 mA) with pull-down resistor 50K |
| 93 | VBID7 | B | LVTTL I/O Buffer (Low-noise : IoL = 6 mA) with pull-down resistor 50K |
| 94 | VBIDQ_N | B | LVTTL I/O Buffer (Low-noise : IoL = 6 mA) with pull-up Resistor 50K |
| 95 | VBISLD | B | LVTTL I/O Buffer (Low-noise : IoL = 6 mA) with pull-down resistor 50K |
| 96 | I2CSCL0 | B | TTL 5V I/O Buffer (Schmitt in : Low-noise : IoL = 12 mA) |
| 97 | I2CSDA0 | B | TTL 5V I/O Buffer (Schmitt in : Low-noise : IoL = 12 mA) |
| 98 | I2CSCL1 | B | TTL 5V I/O Buffer (Schmitt in : Low-noise : IoL = 12 mA) |
| 99 | I2CSDA1 | B | TTL 5V I/O Buffer (Schmitt in : Low-noise : IoL = 12 mA) |
| 100 | AI2SLRCK | O | TTL 5V 3-State Output Buffer (Low-noise : IoL = 12 mA) |

F

| No. | Pin Name | I/O | Function |
|-----|------------|-----|---|
| 101 | AM_AS DAT | O | TTL 5V 3-State Output Buffer (Low-noise : IoL = 12 mA) |
| 102 | AM_LRCLK | B | TTL 5V I/O Buffer (Schmitt in : Low-noise : IoL = 12 mA) |
| 103 | AI2SCLK | O | TTL 5V 3-State Output Buffer (Low-noise : IoL = 12 mA) |
| 104 | VDD | – | Power supply |
| 105 | GND | – | Ground |
| 106 | GND | – | Ground |
| 107 | CLK256FS | I | LVTTL Input Buffer |
| 108 | AM_BCLK | B | TTL 5V I/O Buffer (Schmitt in : Low-noise : IoL = 12 mA) |
| 109 | SIN | I | LVTTL Input Buffer |
| 110 | SMC | I | LVTTL Input Buffer |
| 111 | GPIO_0 | B | TTL 5V I/O Buffer (Schmitt in : Low-noise : IoL = 12 mA) |
| 112 | GPIO_1 | B | TTL 5V I/O Buffer (Schmitt in : Low-noise : IoL = 12 mA) |
| 113 | GPIO_2 | B | TTL 5V I/O Buffer (Schmitt in : Low-noise : IoL = 12 mA) |
| 114 | GPIO_3 | B | TTL 5V I/O Buffer (Schmitt in : Low-noise : IoL = 12 mA) |
| 115 | GPIO_4 | B | TTL 5V I/O Buffer (Schmitt in : Low-noise : IoL = 12 mA) |
| 116 | GPIO_5 | B | TTL 5V I/O Buffer (Schmitt in : Low-noise : IoL = 12 mA) |
| 117 | GPIO_6 | B | TTL 5V I/O Buffer (Schmitt in : Low-noise : IoL = 12 mA) |
| 118 | GPIO_7 | B | TTL 5V I/O Buffer (Schmitt in : Low-noise : IoL = 12 mA) |
| 119 | GND | – | Ground |
| 120 | IDE_CLK | I | 5V Input Buffer (Schmitt in) |
| 121 | VDD | – | Power supply |
| 122 | IDEC S1_N | O | TTL 5V Output Buffer (IoL = 6 mA) |
| 123 | IDEC S0_N | O | TTL 5V Output Buffer (IoL = 6 mA) |
| 124 | IDEDA2 | O | TTL 5V Output Buffer (IoL = 6 mA) |
| 125 | IDEDA0 | O | TTL 5V Output Buffer (IoL = 6 mA) |
| 126 | SOUT | O | LVTTL Output Buffer (Low-noise : IoL = 6 mA) |
| 127 | IDEDA1 | O | TTL 5V Output Buffer (IoL = 6 mA) |
| 128 | IDEINTRQ | I | 5V Input Buffer (Schmitt in) |
| 129 | IDEDMACK_N | O | TTL 5V Output Buffer (IoL = 6 mA) |
| 130 | VDD | – | Power supply |
| 131 | GND | – | Ground |
| 132 | IDEIORDY | I | 5V Input Buffer (Schmitt in) |
| 133 | IDEIOR_N | O | TTL 5V Output Buffer (IoL = 6 mA) |
| 134 | IDEIOW_N | O | TTL 5V Output Buffer (IoL = 6 mA) |
| 135 | IDEDMARQ | I | 5V Input Buffer (Schmitt in) |
| 136 | GND | – | Ground |
| 137 | IDEDD15 | B | TTL 5V I/O Buffer (Schmitt in : IoL = 6 mA) with pull-down Resistor 50K |
| 138 | IDEDD0 | B | TTL 5V I/O Buffer (Schmitt in : IoL = 6 mA) with pull-down Resistor 50K |
| 139 | GND | – | Ground |
| 140 | IDEDD14 | B | TTL 5V I/O Buffer (Schmitt in : IoL = 6 mA) with pull-down Resistor 50K |
| 141 | IDEDD1 | B | TTL 5V I/O Buffer (Schmitt in : IoL = 6 mA) with pull-down Resistor 50K |
| 142 | IDEDD13 | B | TTL 5V I/O Buffer (Schmitt in : IoL = 6 mA) with pull-down Resistor 50K |
| 143 | GND | – | Ground |
| 144 | VDD | – | Power supply |
| 145 | IDEDD2 | B | TTL 5V I/O Buffer (Schmitt in : IoL = 6 mA) with pull-down Resistor 50K |
| 146 | IDEDD12 | B | TTL 5V I/O Buffer (Schmitt in : IoL = 6 mA) with pull-down Resistor 50K |
| 147 | GND | – | Ground |
| 148 | IDEDD3 | B | TTL 5V I/O Buffer (Schmitt in : IoL = 6 mA) with pull-down Resistor 50K |
| 149 | IDEDD11 | B | TTL 5V I/O Buffer (Schmitt in : IoL = 6 mA) with pull-down Resistor 50K |
| 150 | IDEDD4 | B | TTL 5V I/O Buffer (Schmitt in : IoL = 6 mA) with pull-down Resistor 50K |
| 151 | GND | – | Ground |
| 152 | IDEDD10 | B | TTL 5V I/O Buffer (Schmitt in : IoL = 6 mA) with pull-down Resistor 50K |
| 153 | IDEDD5 | B | TTL 5V I/O Buffer (Schmitt in : IoL = 6 mA) with pull-down Resistor 50K |
| 154 | TMODE0 | I | LVTTL Input Buffer |
| 155 | GND | – | Ground |

A

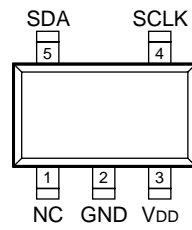
| No. | Pin Name | I/O | Function |
|-----|--------------|-----|---|
| 156 | GND | – | Ground |
| 157 | VDD | – | Power supply |
| 158 | TMODE1 | I | LVTTL Input Buffer |
| 159 | IDEDD9 | B | TTL 5V I/O Buffer (Schmitt in : IoL = 6 mA) with pull-down Resistor 50K |
| 160 | IDEDD6 | B | TTL 5V I/O Buffer (Schmitt in : IoL = 6 mA) with pull-down Resistor 50K |
| 161 | IDEDD8 | B | TTL 5V I/O Buffer (Schmitt in : IoL = 6 mA) with pull-down Resistor 50K |
| 162 | GND | – | Ground |
| 163 | IDEDD7 | B | TTL 5V I/O Buffer (Schmitt in : IoL = 6 mA) with pull-down Resistor 50K |
| 164 | IDERST_N | O | TTL 5V Output Buffer (IoL = 6 mA) |
| 165 | GPIO_8 | B | TTL 5V I/O Buffer (Schmitt in : Low-noise : IoL = 12 mA) |
| 166 | VD5 | – | |
| 167 | GPIO_9 | B | TTL 5V I/O Buffer (Schmitt in : Low-noise : IoL = 12 mA) |
| 168 | GPIO_10 | B | TTL 5V I/O Buffer (Schmitt in : Low-noise : IoL = 12 mA) |
| 169 | GPIO_11 | B | TTL 5V I/O Buffer (Schmitt in : Low-noise : IoL = 12 mA) |
| 170 | GPIO_12 | B | TTL 5V I/O Buffer (Schmitt in : Low-noise : IoL = 12 mA) |
| 171 | GPIO_13 | B | TTL 5V I/O Buffer (Schmitt in : Low-noise : IoL = 12 mA) |
| 172 | GPIO_14 | B | TTL 5V I/O Buffer (Schmitt in : Low-noise : IoL = 12 mA) |
| 173 | GPIO_15 | B | TTL 5V I/O Buffer (Schmitt in : Low-noise : IoL = 12 mA) |
| 174 | FAN_CTL | O | LVTTL Output Buffer (Low-noise : IoL = 6 mA) |
| 175 | GND | – | Ground |
| 176 | SP0_RXD | B | LVTTL I/O Buffer (Low-noise : IoL = 6 mA) |
| 177 | SP0_TXD | O | LVTTL Output Buffer (Low-noise : IoL = 6 mA) |
| 178 | SP1_RXD | B | LVTTL I/O Buffer (Low-noise : IoL = 6 mA) |
| 179 | SP1_TXD | O | LVTTL Output Buffer (Low-noise : IoL = 6 mA) |
| 180 | SP2_RXD | B | LVTTL I/O Buffer (Low-noise : IoL = 6 mA) |
| 181 | SP2_TXD | O | LVTTL Output Buffer (Low-noise : IoL = 6 mA) |
| 182 | GND | – | Ground |
| 183 | VDD | – | Power supply |
| 184 | TS_CLK | B | LVTTL I/O Buffer (Low-noise : IoL = 6 mA) |
| 185 | TS_DATA | O | LVTTL Output Buffer (Low-noise : IoL = 6 mA) |
| 186 | TS_SYNC | O | LVTTL Output Buffer (Low-noise : IoL = 6 mA) |
| 187 | TS_VALID | O | LVTTL Output Buffer (Low-noise : IoL = 6 mA) |
| 188 | IR_PORT1_OUT | O | TTL 5V Output Buffer (Low-noise : IoL = 12 mA) |
| 189 | IR_PORT2_OUT | O | TTL 5V Output Buffer (Low-noise : IoL = 12 mA) |
| 190 | IR_PORT1_IN | I | 5V Input Buffer (Schmitt in) |
| 191 | IR_PORT2_IN | I | 5V Input Buffer (Schmitt in) |
| 192 | GNT5_N | O | 5V PCI Output Buffer |
| 193 | REQ5_N | I | 5V PCI Input Buffer |
| 194 | GNT4_N | O | 5V PCI Output Buffer |
| 195 | REQ4_N | I | 5V PCI Input Buffer |
| 196 | GNT3_N | O | 5V PCI Output Buffer |
| 197 | REQ3_N | I | 5V PCI Input Buffer |
| 198 | GNT2_N | O | 5V PCI Output Buffer |
| 199 | REQ2_N | I | 5V PCI Input Buffer |
| 200 | GNT1_N | O | 5V PCI Output Buffer |
| 201 | REQ1_N | I | 5V PCI Input Buffer |
| 202 | GNT0_N | O | 5V PCI Output Buffer |
| 203 | REQ0_N | I | 5V PCI Input Buffer |
| 204 | GNT_N | I | 5V PCI Input Buffer |
| 205 | REQ_N | O | 5V PCI 3-State Output Buffer |
| 206 | INTA_N | O | 5V PCI 3-State Output Buffer |
| 207 | VCLK | I | LVTTL Input Buffer |
| 208 | VDD | – | Power supply |

F

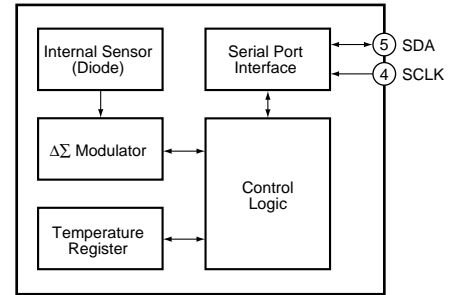
■ TC74A5-3.3VCT (MAIN ASSY : IC4201)

- Tiny Serial Digital Thermal Sensor

● Pin Arrangement (Top view)



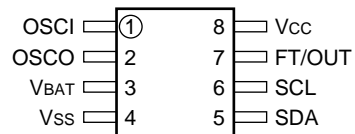
● Block Diagram



■ M41T00M6 (MAIN ASSY : IC4202)

- Serial Timekeeper

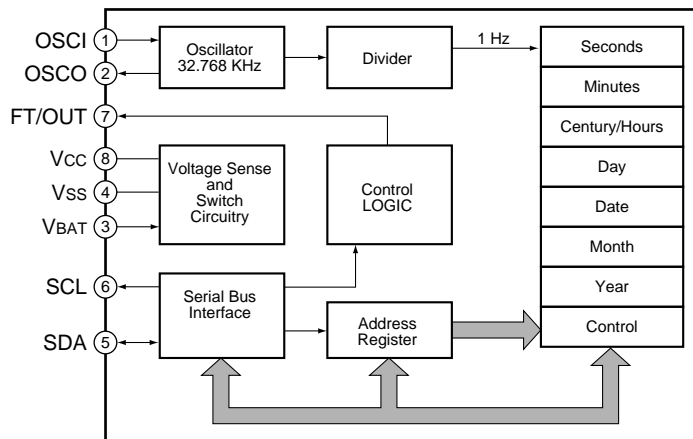
● Pin Arrangement (Top view)



● Pin Function

| No. | Pin Name | I/O | Function |
|-----|----------|-----|---|
| 1 | OSCI | I | Oscillator Input |
| 2 | OSCO | O | Oscillator Output |
| 3 | VBAT | I | Battery Supply Voltage |
| 4 | VSS | – | Ground |
| 5 | SDA | I/O | Serial Data Address Input/Output |
| 6 | SCL | O | Serial Clock |
| 7 | FT/OUT | O | Frequency Test/Output Driver (Open Drain) |
| 8 | VCC | – | Supply Voltage |

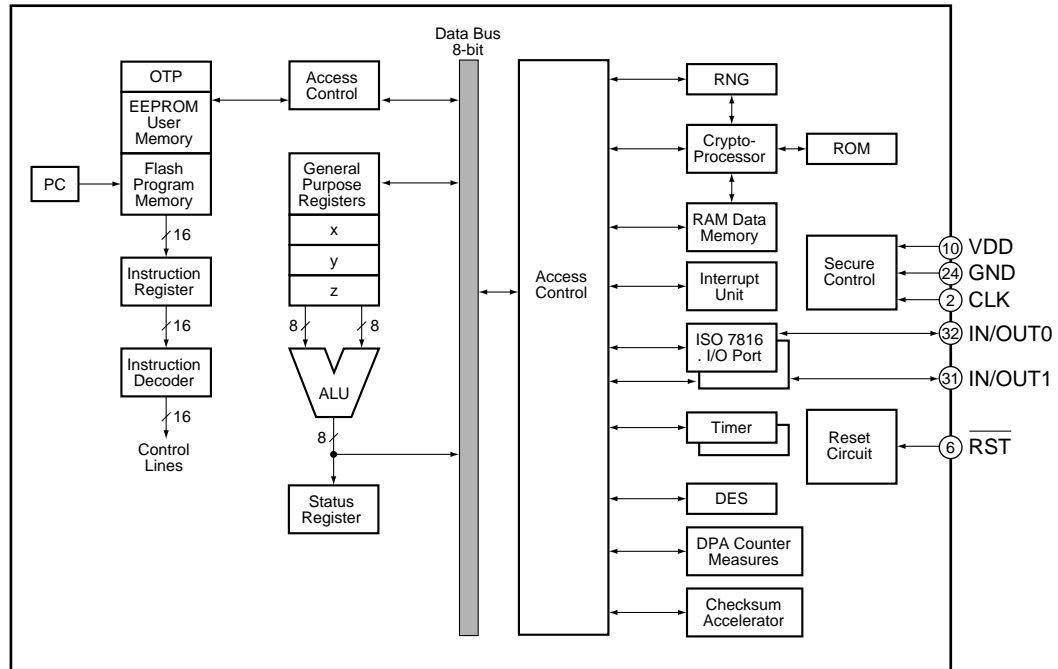
● Block Diagram



■ AT90SC6464C-AL (MAIN ASSY : IC4401)

- Secure Micro

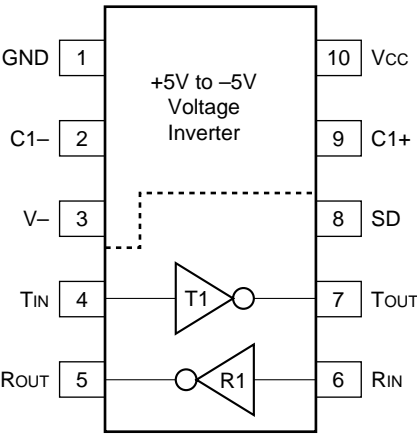
● Block Diagram



ADM101EARM (MAIN ASSY : IC4501)

• RS232 Transceiver

● Block Diagram



● Pin Function

| No. | Pin Name | I/O | Function |
|-----|----------|-----|---|
| 1 | GND | – | Ground Pin. Must be connected to 0V. |
| 2 | C1– | – | Negative Terminal of C1 (if C1 is polarized Capacitor). |
| 3 | V– | – | Internally Generated Negative Supply Voltage. |
| 4 | TIN | I | Driver Input (3V to 5V TTL/CMOS Logic Levels). |
| 5 | ROUT | O | Receiver Output (3V to 5V TTL/CMOS Logic Levels). |
| 6 | RIN | I | Receiver Input (EIA-232 Signal Levels). |
| 7 | TOUT | O | Driver Output (EIA-232 Signal Levels). |
| 8 | SD | I | Shutdown Input. Logic 1 on this input puts the ADM101EARM into low power shutdown mode. |
| 9 | C1+ | – | Positive Terminal of Charge Pump Capacitor (if C1 is Polarized Capacitor). |
| 10 | VCC | – | Positive Power Supply, Nominally 5V. |

■ XC2S15-5TQ144C (MAIN ASSY : IC5402)

• PLD IC

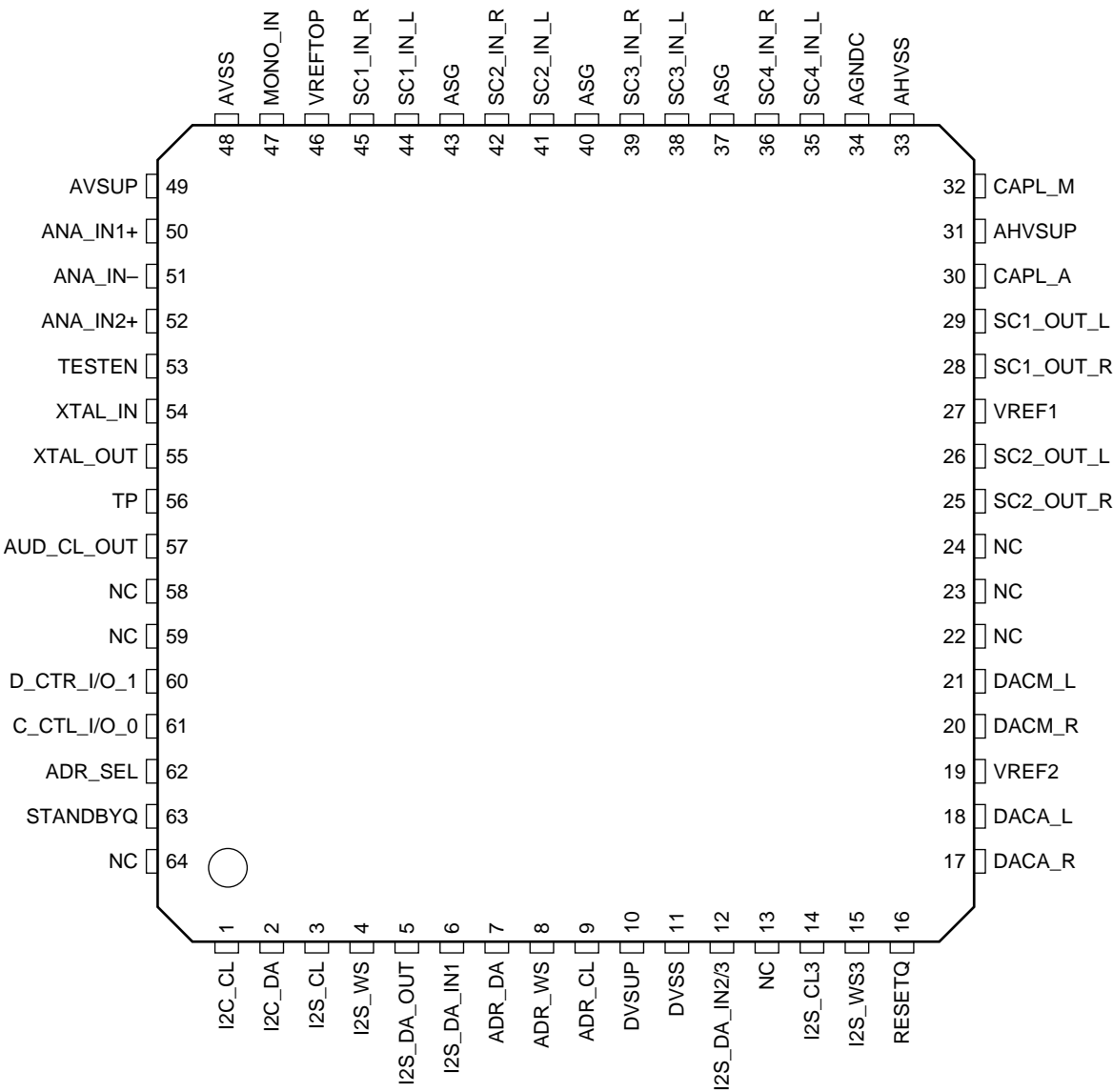
● Pin Function

| No. | Pin Name | I/O | Pin Function |
|---|------------------------------|---------------|---|
| 15, 18, 88, 91 | GCK0, GCK1, GCK2, GCK3 | I | Clock input pins that connected to Global Clock Buffers. These pins become user inputs when not needed for clocks. |
| 109, 111, 106 | M0, M1, M2 | I | Mode pins are used to specify the configuration mode. |
| 37 | CCLK | I/O | The configuration Clock I/O pin. It is an input for slave-parallel and slave-serial modes, and output in master-serial mode. |
| 69 | PROGRAM | I | Initiates a configuration sequence when asserted Low. |
| 72 | DONE | Bidirectional | Indicates that configuration loading is complete, and that the start-up sequence is in progress. The output may be open drain. |
| 68 | INIT | Bidirectional | When Low, indicates that the configuration memory is being cleared. This pin becomes a user I/O after configuration. |
| 38 | BUSY/DOUT | O | In Slave Parallel mode, BUSY controls the rate at which configuration data is loaded. This pin becomes a user I/O after configuration unless the Slave Parallel port is retained. In serial mode, DOUT provides configuration data to downstream devices in a daisy-chain. This pin becomes a user I/O after configuration. |
| 39,44,46,49, 57,60,62,67 | D0/DIN,D1,D2, D3,D4,D5,D6,D7 | I/O | In Slave Parallel mode, D0-D7 are configuration data input pins. During readback, D0-D7 are output pins. These pins become user I/Os after configuration unless the Slave Parallel port is retained. In serial modes, DIN is the single data input. This pin becomes a user I/O after configuration. |
| 30 | WRITE | I | In Slave Parallel mode, the active-low Write Enable signal. This pin becomes a user I/O after configuration unless the Slave Parallel port is retained. |
| 31 | CS | I | In Slave Parallel mode, the active-low Chip Select signal. This pin becomes a user I/O after configuration unless the Slave Parallel port is retained. |
| 32,34,142,2 | TDI, TDO, TMS, TCK | Mixed | Boundary Scan Test Access Port pins (IEEE 1149.1). |
| 97 | VCCINT | I | Power supply pins for the internal core logic. |
| 1,16,35,36,53, 70,71,90,107, 108,127,144 | VCCO | I | Power supply pins for output drivers (subject to banking rules). |
| 5,12,21,28,41, 48,58,65,77, 85,94,102,115, 122,132,139 | VREF | I | Input threshold voltage pins. Become user I/O when an external threshold voltage is not needed (subject to banking rules). |
| 8,17,25,33,45, 52,61,73,81, 89,98,110,119, 128,135,143 | GND | I | Ground |
| 51, 54 | IRDY, TRDY | - | These signals can only be accessed when using Xilinx PCI cores. If the cores are not used, these pins are available as user I/O. |
| 3,4,6,7,10,11, 13,19,20,22, 23,26,27,29, 40,43,47,50, 56,59,63,66, 74-76,79,80, 83,84,86,87, 93,95,96,99, 100,103,112-114,117,118, 120,121,123, 124,130,131, 133,134,136, 137,140,141 | I/O | I/O | Input and Output pins. |
| 42,64,78,101, 104,105,116, 138 | NC | - | Not connected |

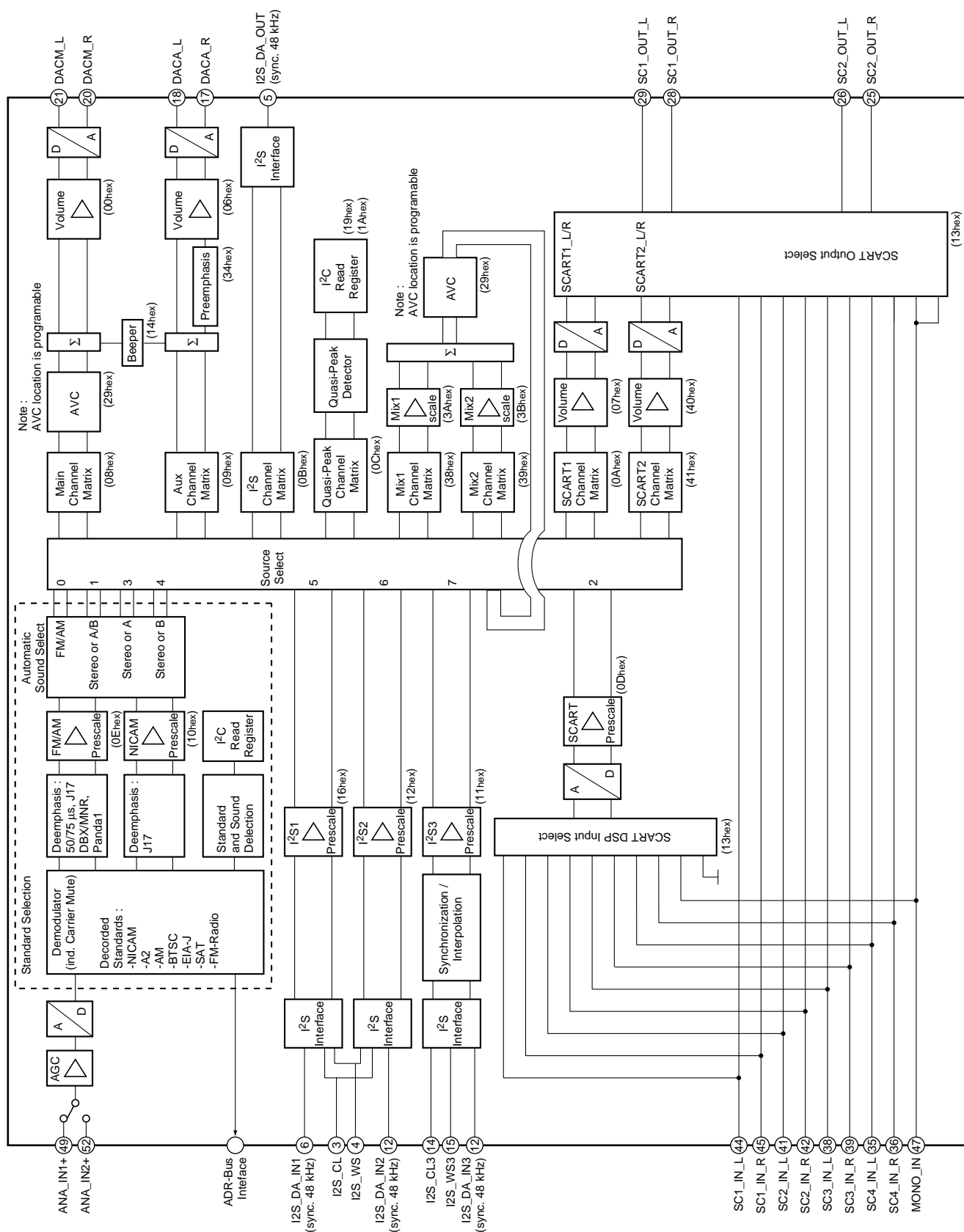
MSP4448G-FH-A2 (MAIN ASSY : IC8501)

• BTSC Decoder

● Pin Arrangement (Top view)



- **Block Diagram**



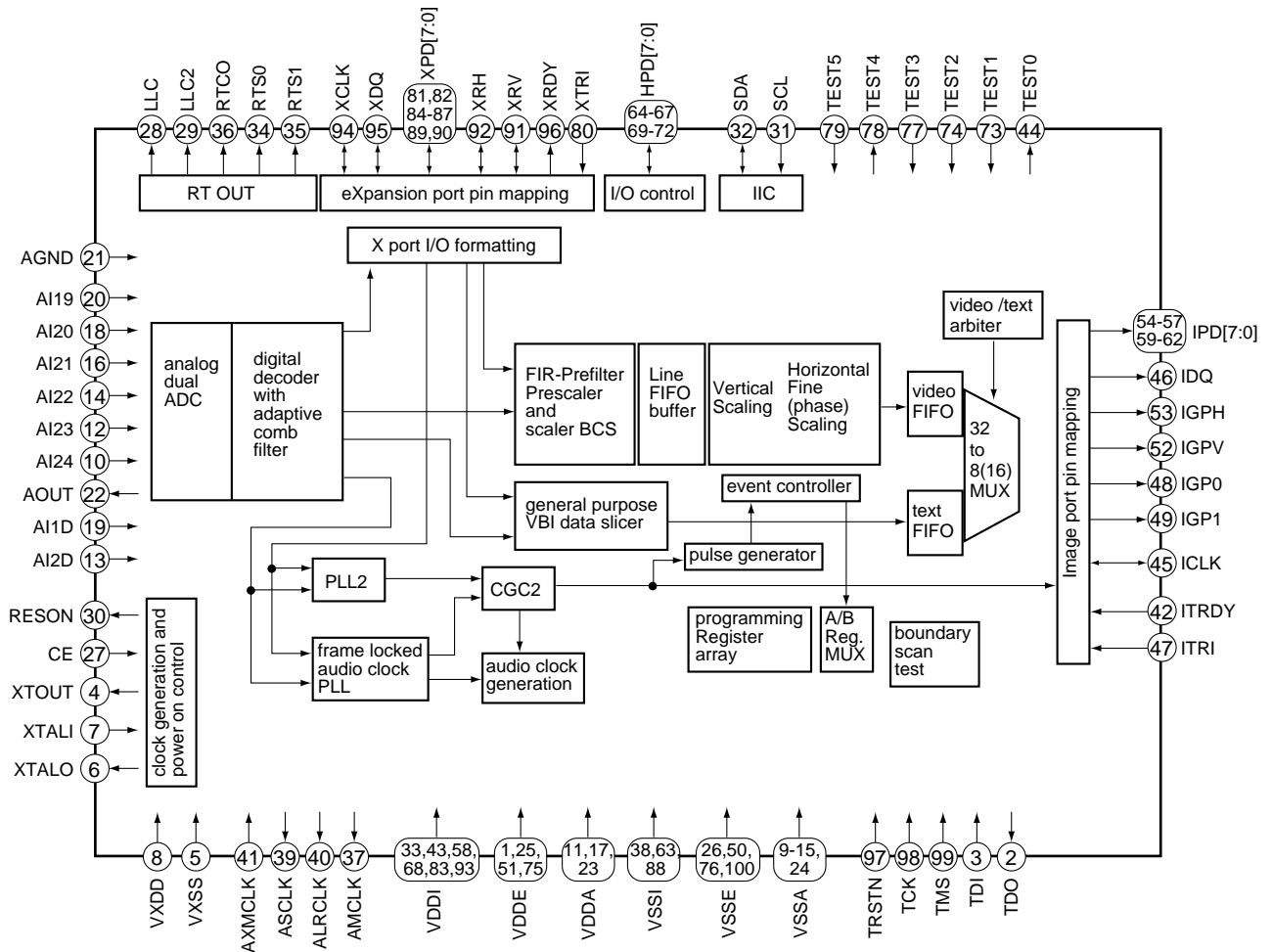
● Pin Function

| No. | Pin Name | I/O | Function | No. | Pin Name | I/O | Function |
|-----|--------------|-----|--------------------------------|-----|-------------|-----|--|
| 1 | I2C_CL | I/O | I ² C clock | 33 | AHVSS | – | Analog ground |
| 2 | I2C_DA | I/O | I ² C data | 34 | AGNDC | – | Analog reference voltage |
| 3 | I2S_CL | I/O | I ² S clock | 35 | SC4_IN_L | I | SCRAT 4 input, left |
| 4 | I2S_WS | I/O | I ² S word strobe | 36 | SC4_IN_R | I | SCRAT 4 input, right |
| 5 | I2S_DA_OUT | O | I ² S data output | 37 | ASG | – | Analog shield ground |
| 6 | I2S_DA_IN1 | I | I ² S1 data input | 38 | SC3_IN_L | I | SCRAT 3 input, left |
| 7 | ADR_DA | O | ADR data output | 39 | SC3_IN_R | I | SCRAT 3 input, right |
| 8 | ADR_WS | O | ADR word strobe | 40 | ASG | – | Analog shield ground |
| 9 | ADR_CL | O | ADR clock | 41 | SC2_IN_L | I | SCRAT 2 input, left |
| 10 | DVSUP | – | Digital power supply +5V | 42 | SC2_IN_R | I | SCRAT 2 input, right |
| 11 | DVSS | – | Digital ground | 43 | ASG | – | Analog shield ground |
| 12 | I2S_DA_IN2/3 | I | I ² S2/3-data input | 44 | SC1_IN_L | I | SCRAT 1 input, left |
| 13 | NC | – | Not connected | 45 | SC1_IN_R | I | SCRAT 1 input, right |
| 14 | I2S_CL3 | I | I ² S3 clock | 46 | VREFTOP | – | Reference voltage IF A/D converter |
| 15 | I2S_WS3 | I | I ² S3 word strobe | 47 | MONO_IN | I | Mono input |
| 16 | RESETQ | I | Power-on-reset | 48 | AVSS | – | Analog ground |
| 17 | DACA_R | O | Aux out, right | 49 | AVSUP | – | Analog power supply +5V |
| 18 | DACA_L | O | Aux out, left | 50 | ANA_IN1+ | I | IF input 1 |
| 19 | VREF2 | – | Reference ground 2 | 51 | ANA_IN– | I | IF common (Can be left vacant, only if IF input 1 is also not in use) |
| 20 | DACM_R | O | Main out, right | 52 | ANA_IN2+ | I | IF input 2 (Can be left vacant, only if IF input 1 is also not in use) |
| 21 | DACM_L | O | Main out, left | 53 | TESTEN | I | Test pin |
| 22 | NC | – | Not connected | 54 | XTAL_IN | I | Crystal oscillator |
| 23 | NC | – | Not connected | 55 | XTAL_OUT | O | Crystal oscillator |
| 24 | NC | – | Not connected | 56 | TP | – | Test pin |
| 25 | SC2_OUT_R | O | SCART output 2, right | 57 | AUD_CL_OUT | O | Audio clock output (18.432 MHz) |
| 26 | SC2_OUT_L | O | SCART output 2, left | 58 | NC | – | Not connected |
| 27 | VREF1 | – | Reference ground 1 | 59 | NC | – | Not connected |
| 28 | SC1_OUT_R | O | SCART output 1, right | 60 | D_CTR_I/O_1 | I/O | D_CTR_I/O_1 |
| 29 | SC1_OUT_L | O | SCART output 1, left | 61 | D_CTR_I/O_0 | I/O | D_CTR_I/O_0 |
| 30 | CAPL_A | – | Volume capacitor Aux | 62 | ADR_SEL | I | I ² C Bus address select |
| 31 | AHVSUP | – | Analog power supply 8.0V | 63 | STANDBYQ | I | Stand-by (low-active) |
| 32 | CAPL_M | – | Volume capacitor Main | 64 | NC | – | Not connected |

■ SAA7115HL/V1 (MAIN ASSY : IC8801)

• DDEC IC

● Block Diagram



● Pin Function

| No. | Pin Name | I/O | Pin Function |
|-----|----------|-----|---|
| 1 | VDDE | – | Digital supply voltage 3.3V (external pad supply) |
| 2 | TDO | O | Test Data Output for Boundary Scan Test |
| 3 | TDI | I | Test Data Input for Boundary Scan Test (with internal pull-up) |
| 4 | XTOUT | O | Crystal oscillator output signal, auxiliary signal |
| 5 | VXSS | – | Ground pin for crystal oscillator |
| 6 | XTALO | O | 24.576 (32.11) MHz crystal oscillator output; not connected if XTAL is driven by an external single-ended oscillator. |
| 7 | XTALI | I | Input terminal for 24.576 (32.11) MHz crystal oscillator or connection of external oscillator with TTL compatible square wave clock signal. |
| 8 | VXDD | – | Supply voltage pin of crystal oscillator |
| 9 | VSSA2 | – | Ground for analog inputs AI2x |
| 10 | AI24 | I | Analog input 24 |

A

B

C

D

E

F

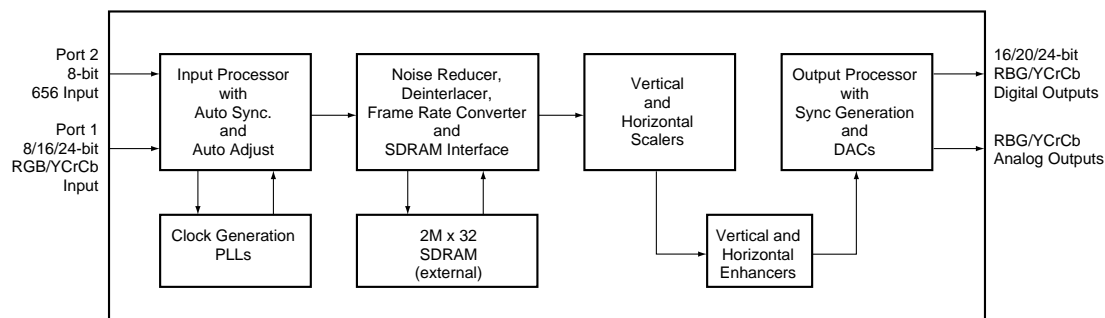
| No. | Pin Name | I/O | Pin Function |
|-----|----------|-------|--|
| 11 | VDDA2 | – | Analog supply voltage for analog inputs AI2x (3.3V) |
| 12 | AI23 | I | Analog input 23 |
| 13 | AI2D | I | Differential input for ADC channel 2 (pins AI24, AI23, AI22, AI21) |
| 14 | AI22 | I | Analog input 22 |
| 15 | VSSA1 | – | Ground for analog inputs AI1x |
| 16 | AI21 | I | Analog input 21 |
| 17 | VDDA1 | – | Analog supply voltage for analog inputs AI1x (3.3V) |
| 18 | AI12 | I | Analog input 12 |
| 19 | AI1D | I | Differential input for ADC channel 1 (pins AI12, AI11) |
| 20 | AI11 | I | Analog input 11 |
| 21 | AGND | – | Analog ground connection |
| 22 | AOUT | O | Analog test output (do not connect) |
| 23 | VDDA0 | – | Analog positive supply voltage for both internal CGC (Clock Generation Circuit) (3.3V) |
| 24 | VSSA0 | – | Analog ground for internal CGC |
| 25 | VDDE | – | Digital supply voltage 3.3V (external pad supply) |
| 26 | VSSE | – | Digital ground (external pad supply) |
| 27 | CE | I | Chip Enable or RESET input (with internal pull up) |
| 28 | LLC | O | Line-locked system clock output (27 MHz nominal), for backward compatibility, do not use for new applications |
| 29 | LLC2 | O | Line-locked clock/2 output (13.5 MHz nominal) for backward compatibility, do not use for new applications |
| 30 | RESON | O | RESet Output Not signal |
| 31 | SCL | I/O | IIC serial clock line (with inactive output path) |
| 32 | SDA | I/O | IIC serial data line |
| 33 | VDDI | – | Digital supply voltage 3.3V (internal core supply) |
| 34 | RTS0 | O | Real time status or sync information, controlled by subaddr. "11h and 12h" |
| 35 | RTSI | I | Real time status or sync information, controlled by subaddr. "11h and 12h" |
| 36 | RTCO | (I/O) | Real Time Control Output |
| 37 | AMCLK | O | Audio master clock output |
| 38 | VSSI | – | Digital ground (internal core supply) |
| 39 | ASCLK | O | Audio serial clock output |
| 40 | ALRCLK | (I/O) | Audio left/right clock output |
| 41 | AMXCLK | I | Audio master external clock input (typing error corrected) |
| 42 | ITRDY | I | Target ready input, image port (with internal pull up) |
| 43 | VDDI | – | Digital supply voltage 3.3V (internal core supply) |
| 44 | TEST0 | O | Do not connect, reserved for future extensions and for Testing: scan output |
| 45 | ICLK | I/O | Clock output signal for image-port, LCLK of LPB image port mode, or optional asynchron. Backend clock input |
| 46 | IDQ | O | Output data qualifier for image port (optional: gated clock output) |
| 47 | ITRI | I/O | Image-port output control signal, effects all I-port pins incl. ICLK, enable and active polarity is under software control (bits IPE in subaddr. "87") output path used for Testing: scan output |
| 48 | IGP0 | O | General purpose output signal 0; image-port (controlled by subaddr. "84", "85") |
| 49 | IGP1 | O | General purpose output signal 1; image-port (controlled by subaddr. "84", "85"), same functions as IGP0 |
| 50 | VSSE | – | Digital ground (external pad supply) |
| 51 | VDDE | – | Digital supply voltage 3.3V (external pad supply) |
| 52 | IGPV | O | Multi purpose vertical reference output signal; image-port (controlled by subaddr. "84", "85") |
| 53 | IGPH | O | Multi purpose horizontal reference output signal; image-port (controlled by subaddr. "84", "85") |
| 54 | IPD7 | O | Image port data output |
| 55 | IPD6 | O | |

| No. | Pin Name | I/O | Pin Function |
|-----|----------|-----|--|
| 56 | IPD5 | O | Image port data output |
| 57 | IPD4 | O | |
| 58 | VDDI | – | Digital supply voltage 3.3V (internal core supply) |
| 59 | IPD3 | O | Image port data output |
| 60 | IPD2 | O | |
| 61 | IPD1 | O | |
| 62 | IPD0 | O | |
| 63 | VSSI | – | Digital ground (internal core supply) |
| 64 | HPD7 | I/O | Host port data I/O, carries UV chrominance information in 16 bit video I/O modes |
| 65 | HPD6 | I/O | |
| 66 | HPD5 | I/O | |
| 67 | HPD4 | I/O | |
| 68 | VDDI | – | Digital supply voltage 3.3V (internal core supply) |
| 69 | HPD3 | I/O | Host port data I/O, carries UV chrominance information in 16 bit video I/O modes |
| 70 | HPD2 | I/O | |
| 71 | HPD1 | I/O | |
| 72 | HPD0 | I/O | |
| 73 | TEST1 | I | Do not connect, reserved for future extensions and for Testing: scan input |
| 74 | TSET2 | I | Do not connect, reserved for future extensions and for Testing: scan input |
| 75 | VDDE | – | Digital supply voltage 3.3V (external pade supply) |
| 76 | VSSE | – | Digital ground (external pad supply) |
| 77 | TEST3 | I | Do not connect, reserved for future extensions and for Testing: scan input |
| 78 | TEST4 | O | Do not connect, reserved for future extensions and for Testing: scan output |
| 79 | TEST5 | I | Do not connect, reserved for future extensions and for Testing: scan input |
| 80 | XTRI | I | X-port output control signal, effects all X-port pins (XPD[7:0], XRH, XRV, XDQ and XCLK) Enable and active polarity is under software control (bits XPE in subaddr. "83") |
| 81 | XPD7 | I/O | Expansion-port data: In eight bit video output mode: these signal represent the video bits 7 to 6. In ten bit video output mode: these signal represent the video bits 9 to 8. |
| 82 | XPD6 | I/O | |
| 83 | VDDI | – | Digital supply voltage 3.3V (internal core supply) |
| 84 | XPD5 | I/O | Expansion-port data: In eight bit video output mode: these signal represent the video bits 5 to 2. In ten bit video output mode: these signal represent the video bits 7 to 4. |
| 85 | XPD4 | I/O | |
| 86 | XPD3 | I/O | |
| 87 | XPD2 | I/O | Expansion-port data: In eight bit video output mode: these signal represent the video bits 1 to 0. In ten bit video output mode: these signal represent the video bits 3 to 2. |
| 88 | VSSI | – | |
| 89 | XPD1 | I/O | |
| 90 | XPD0 | I/O | Vertical reference I/O expansion-port: Inten bit video output mode: this signal represents the video bit 0. |
| 91 | XRV | I/O | |
| 92 | XRH | I/O | Horizontal reference I/O expansion-port: Inten bit video output mode: this signal represents the video bit 1. |
| 93 | VDDI | – | Digital supply voltage 3.3V (internal core supply) |
| 94 | XCLK | I/O | Clock I/O expansion port |
| 95 | XDQ | I/O | Data qualifier I/O expansion port |
| 96 | XRDY | O | Task flag or read signal from scaler, controlled by XRQT (subaddr. 83H) |
| 97 | TRSTN | I | Test ReSeT Not for Boundary Scan Test (with internal pull-up); for board design without Boundary Scan connect TRSTN to 'ground' |
| 98 | TCK | I | Test Clock for Boundary Scan Test (with internal pull-up) |
| 99 | TMS | I | Test Mode Select for Boundary Scan Test or Scan Test (with internal pull-up) |
| 100 | VSSE | – | Digital ground (external pad supply) |

■ FLI2301-BC (MAIN ASSY : IC9001)

- Digital Video Converter

● Block Diagram



● Pin Functions

| No. | Pin Name | I/O | Function |
|-----|-----------------|-----|--|
| 1 | HSYNC1_PORT1 | I | Horizontal sync or reference-CTL1 of Port 1 |
| 2 | VSYNC1_PORT1 | I | Vertical sync or reference-CTL1 of Port 1 |
| 3 | FIELD_ID1_PORT1 | I | Odd/Even Field identification-CTL1 of Port 1 |
| 4 | IN_CLK1_PORT1 | I | Data Clock input-CTL1 of Port 1 |
| 5 | HSYNC2_PORT1 | I | Horizontal sync or reference-CTL2 of Port 1 |
| 6 | VSYNC2_PORT1 | I | Vertical sync or reference-CTL2 of Port 1 |
| 7 | FIELD_ID2_PORT1 | I | Odd/Even Field identification-CTL2 of Port 1 |
| 8 | VDD1 | – | 3.3V-Power pin for I/O |
| 9 | VSS | – | Ground |
| 10 | IN_CLK2_PORT1 | I | Data Clock input-CTL2 of Port 1 |
| 11 | B/Cb/D1_0 | I | Port 1-Digital video input (Blue/Cb/D1) |
| 12 | B/Cb/D1_1 | I | Port 1-Digital video input (Blue/Cb/D1) |
| 13 | B/Cb/D1_2 | I | Port 1-Digital video input (Blue/Cb/D1) |
| 14 | B/Cb/D1_3 | I | Port 1-Digital video input (Blue/Cb/D1) |
| 15 | B/Cb/D1_4 | I | Port 1-Digital video input (Blue/Cb/D1) |
| 16 | VDDcore1 | – | 1.8V-Power pin for core |
| 17 | VSScore | – | Ground |
| 18 | B/Cb/D1_5 | I | Port 1-Digital video input (Blue/Cb/D1) |
| 19 | B/Cb/D1_6 | I | Port 1-Digital video input (Blue/Cb/D1) |
| 20 | B/Cb/D1_7 | I | Port 1-Digital video input (Blue/Cb/D1) |
| 21 | R/Cr/CbCr_0 | I | Port 1-Digital video input (Red/Cr/CrCb) |
| 22 | R/Cr/CbCr_1 | I | Port 1-Digital video input (Red/Cr/CrCb) |
| 23 | R/Cr/CbCr_2 | I | Port 1-Digital video input (Red/Cr/CrCb) |
| 24 | R/Cr/CbCr_3 | I | Port 1-Digital video input (Red/Cr/CrCb) |
| 25 | R/Cr/CbCr_4 | I | Port 1-Digital video input (Red/Cr/CrCb) |
| 26 | R/Cr/CbCr_5 | I | Port 1-Digital video input (Red/Cr/CrCb) |
| 27 | R/Cr/CbCr_6 | I | Port 1-Digital video input (Red/Cr/CrCb) |
| 28 | R/Cr/CbCr_7 | I | Port 1-Digital video input (Red/Cr/CrCb) |
| 29 | G/Y/Y_0 | I | Port 1-Digital video input (Green/Y) |
| 30 | VDD2 | – | 3.3V-Power pin for I/O |
| 31 | VSS | – | Ground |
| 32 | G/Y/Y_1 | I | Port 1-Digital video input (Green/Y) |
| 33 | G/Y/Y_2 | I | Port 1-Digital video input (Green/Y) |
| 34 | G/Y/Y_3 | I | Port 1-Digital video input (Green/Y) |
| 35 | G/Y/Y_4 | I | Port 1-Digital video input (Green/Y) |
| 36 | VDDcore2 | – | 1.8V-Power pin for core |
| 37 | VSScore | – | Ground |
| 38 | G/Y/Y_5 | I | Port 1-Digital video input (Green/Y) |
| 39 | G/Y/Y_6 | I | Port 1-Digital video input (Green/Y) |
| 40 | G/Y/Y_7 | I | Port 1-Digital video input (Green/Y) |

| No. | Pin Name | I/O | Function |
|-----|-----------------|-----|-------------------------------------|
| 41 | IN_SEL | O | Output to select external video mux |
| 42 | TEST | I | Connect to Ground |
| 43 | DEV_ADDR1 | I | Device address setting 1 |
| 44 | DEV_ADDR0 | I | Device address setting 0 |
| 45 | SCLK | I/O | 2-wire serial control bus clock |
| 46 | SDATA | I/O | 2-wire serial control bus data |
| 47 | Reset_N | I | Reset |
| 48 | VDD3 | – | 3.3V-Power pin for I/O |
| 49 | VSS | – | Ground |
| 50 | SDRAM DATA (0) | I/O | SDRAM data bus |
| 51 | SDRAM DATA (1) | I/O | SDRAM data bus |
| 52 | SDRAM DATA (2) | I/O | SDRAM data bus |
| 53 | SDRAM DATA (3) | I/O | SDRAM data bus |
| 54 | SDRAM DATA (4) | I/O | SDRAM data bus |
| 55 | SDRAM DATA (5) | I/O | SDRAM data bus |
| 56 | SDRAM DATA (6) | I/O | SDRAM data bus |
| 57 | SDRAM DATA (7) | I/O | SDRAM data bus |
| 58 | SDRAM DATA (8) | I/O | SDRAM data bus |
| 59 | SDRAM DATA (9) | I/O | SDRAM data bus |
| 60 | SDRAM DATA (10) | I/O | SDRAM data bus |
| 61 | SDRAM DATA (11) | I/O | SDRAM data bus |
| 62 | VDD4 | – | 3.3V-Power pin for I/O |
| 63 | VSS | – | Ground |
| 64 | SDRAM DATA (12) | I/O | SDRAM data bus |
| 65 | SDRAM DATA (13) | I/O | SDRAM data bus |
| 66 | SDRAM DATA (14) | I/O | SDRAM data bus |
| 67 | SDRAM DATA (15) | I/O | SDRAM data bus |
| 68 | VDDcore3 | – | 3.3V-Power pin for core |
| 69 | VSScore | – | Ground |
| 70 | SDRAM DATA (16) | I/O | SDRAM data bus |
| 71 | SDRAM DATA (17) | I/O | SDRAM data bus |
| 72 | SDRAM DATA (18) | I/O | SDRAM data bus |
| 73 | SDRAM DATA (19) | I/O | SDRAM data bus |
| 74 | SDRAM DATA (20) | I/O | SDRAM data bus |
| 75 | SDRAM DATA (21) | I/O | SDRAM data bus |
| 76 | SDRAM DATA (22) | I/O | SDRAM data bus |
| 77 | SDRAM DATA (23) | I/O | SDRAM data bus |
| 78 | SDRAM DATA (24) | I/O | SDRAM data bus |
| 79 | SDRAM DATA (25) | I/O | SDRAM data bus |
| 80 | VDDcore4 | – | 3.3V-Power pin for core |
| 81 | VSScore | – | Ground |
| 82 | SDRAM DATA (26) | I/O | SDRAM data bus |
| 83 | SDRAM DATA (27) | I/O | SDRAM data bus |
| 84 | SDRAM DATA (28) | I/O | SDRAM data bus |
| 85 | SDRAM DATA (29) | I/O | SDRAM data bus |
| 86 | SDRAM DATA (30) | I/O | SDRAM data bus |
| 87 | SDRAM DATA (31) | I/O | SDRAM data bus |
| 88 | VDD5 | – | 3.3V-Power pin for I/O |
| 89 | VSS | – | Ground |
| 90 | TEST IN | I | Test input-Connect to ground |

A

| No. | Pin Name | I/O | Function |
|-----|-----------------|-----|--|
| 91 | SDRAM ADDR (10) | O/P | SDRAM address bus |
| 92 | SDRAM ADDR (9) | O/P | SDRAM address bus |
| 93 | SDRAM ADDR (8) | O/P | SDRAM address bus |
| 94 | SDRAM ADDR (7) | O/P | SDRAM address bus |
| 95 | SDRAM ADDR (6) | O/P | SDRAM address bus |
| 96 | VDDcore5 | – | 1.8V-Power pin for core |
| 97 | VSScore | – | Ground |
| 98 | SDRAM ADDR (5) | O/P | SDRAM address bus |
| 99 | SDRAM ADDR (4) | O/P | SDRAM address bus |
| 100 | SDRAM ADDR (3) | O/P | SDRAM address bus |
| 101 | SDRAM ADDR (2) | O/P | SDRAM address bus |
| 102 | SDRAM ADDR (1) | O/P | SDRAM address bus |
| 103 | SDRAM ADDR (0) | O/P | SDRAM address bus |
| 104 | SDRAM WEN | O/P | SDRAM write enable |
| 105 | SDRAM RASN | O/P | SDRAM row address select |
| 106 | SDRAM CASN | O/P | SDRAM column address select |
| 107 | SDRAM BA1 | O/P | SDRAM bank select 1 |
| 108 | SDRAM BA0 | O/P | SDRAM bank select 0 |
| 109 | SDRAM CSN | O/P | SDRAM CS |
| 110 | SDRAM DQM | O/P | SDRAM DQM |
| 111 | SDRAM CLKOUT | O | Clock out to SDRAM |
| 112 | VDD6 | – | 3.3V-Power pin for I/O |
| 113 | VSS | – | Ground |
| 114 | SDRAM CLKIN | I | Trace delayed SDRAM Clock in |
| 115 | TEST3 | I | Test input-Connect to ground |
| 116 | TEST OUT0 | O | Test output-leave open |
| 117 | TEST OUT1 | O | Test output-leave open |
| 118 | CTLOUT0 | O/P | Control signal output selectable as HSync1/CSync/HRef/Monitor coast |
| 119 | CTLOUT1 | O/P | Control signal output selectable as VSync1/CRef/VRef/Film Indicator |
| 120 | CTLOUT2 | O/P | Control signal output selectable as Monitor coast/HRef/VDD_en/HSync2 |
| 121 | CTLOUT3 | O/P | Control signal output selectable as Film Indicator/VRef/backlight_en/VSyn2 |
| 122 | CTLOUT4 | O/P | Control signal output selectable as CRef/Field ID/CSync/Monitor coast |
| 123 | VDDcore6 | – | 1.8V-Power pin for core |
| 124 | VSScore | – | Ground |
| 125 | CLKOUT | O/P | Output data rate clock |
| 126 | B/U/Pb_OUT_0 | O/P | Digital video output-Blue/U/Pb |
| 127 | B/U/Pb_OUT_1 | O/P | Digital video output-Blue/U/Pb |
| 128 | VDD7 | – | 3.3V-Power pin for I/O |
| 129 | VSS | – | Ground |
| 130 | B/U/Pb_OUT_2 | O/P | Digital video output-Blue/U/Pb |
| 131 | B/U/Pb_OUT_3 | O/P | Digital video output-Blue/U/Pb |
| 132 | B/U/Pb_OUT_4 | O/P | Digital video output-Blue/U/Pb |
| 133 | B/U/Pb_OUT_5 | O/P | Digital video output-Blue/U/Pb |
| 134 | B/U/Pb_OUT_6 | O/P | Digital video output-Blue/U/Pb |
| 135 | B/U/Pb_OUT_7 | O/P | Digital video output-Blue/U/Pb |
| 136 | R/V/Pr_OUT_0 | O/P | Digital video output-Red/V/Pr |
| 137 | R/V/Pr_OUT_1 | O/P | Digital video output-Red/V/Pr |
| 138 | VDDcore7 | – | 1.8V-Power pin for core |
| 139 | VSScore | – | Ground |
| 140 | R/V/Pr_OUT_2 | O/P | Digital video output-Red/V/Pr |

F

| No. | Pin Name | I/O | Function |
|-----|--------------|-----|---|
| 141 | R/V/Pr_OUT_3 | O/P | Digital video output-Red/V/Pr |
| 142 | R/V/Pr_OUT_4 | O/P | Digital video output-Red/V/Pr |
| 143 | R/V/Pr_OUT_5 | O/P | Digital video output-Red/V/Pr |
| 144 | R/V/Pr_OUT_6 | O/P | Digital video output-Red/V/Pr |
| 145 | R/V/Pr_OUT_7 | O/P | Digital video output-Red/V/Pr |
| 146 | VDD8 | – | 3.3V-Power pin for I/O |
| 147 | VSS | – | Ground |
| 148 | G/Y/Y_OUT_0 | O/P | Digital video output-Green/Y |
| 149 | G/Y/Y_OUT_1 | O/P | Digital video output-Green/Y |
| 150 | G/Y/Y_OUT_2 | O/P | Digital video output-Green/Y |
| 151 | G/Y/Y_OUT_3 | O/P | Digital video output-Green/Y |
| 152 | G/Y/Y_OUT_4 | O/P | Digital video output-Green/Y |
| 153 | G/Y/Y_OUT_5 | O/P | Digital video output-Green/Y |
| 154 | G/Y/Y_OUT_6 | O/P | Digital video output-Green/Y |
| 155 | G/Y/Y_OUT_7 | O/P | Digital video output-Green/Y |
| 156 | OE | I | Output data enable for Digital video output |
| 157 | PLL_PVDD | – | 1.8V-Power pin for PLL pads |
| 158 | PLL_PVSS | – | Ground for PLL pads |
| 159 | AVSS_PLL_BE1 | – | PLL Ground |
| 160 | AVDD_PLL_BE1 | – | 1.8V-Power pin for PLL |
| 161 | AVDD_PLL_BE2 | – | 1.8V-Power pin for PLL |
| 162 | AVSS_PLL_BE2 | – | PLL Ground |
| 163 | AVSS_PLL_SDI | – | PLL Ground |
| 164 | AVDD_PLL_SDI | – | 1.8V-Power pin for PLL |
| 165 | AVDD_PLL_FE | – | 1.8V-Power pin for PLL |
| 166 | AVSS_PLL_FE | – | PLL Ground |
| 167 | DAC_PVSS | – | Ground for DAC pads |
| 168 | DAC_VDD | – | 1.8V-Digital power pin for DAC |
| 169 | DAC_VSS | – | DAC digital ground |
| 170 | DAC_BOUT | O | Analog B/U output |
| 171 | DAC_AVDDDB | – | 3.3V-Analog power pin for B channel |
| 172 | DAC_AVSSB | – | Analog Ground for B channel |
| 173 | DAC_GOUT | O | Analog G/Y output |
| 174 | DAC_AVDDG | – | 3.3V-Analog power pin for G channel |
| 175 | DAC_AVSSG | – | Analog Ground for G channel |
| 176 | DAC_ROUT | O | Analog R/V output |
| 177 | DAC_AVDDR | – | 3.3V-Analog power pin for R channel |
| 178 | DAC_AVSSR | – | Analog Ground for R channel |
| 179 | DAC_COMP | O | Compensation for video DACs |
| 180 | DAC_RSET | O | Current setting resistor for video DACs |
| 181 | DAC_VREFOUT | O | 1.28V Internally generated voltage reference for video DACs |
| 182 | DAC_VREFIN | I | External Voltage reference for video DACs |
| 183 | DAC_AVDD | – | 3.3V-Analog power pin for DAC |
| 184 | DAC_AVSS | – | Analog Ground for DAC |
| 185 | DAC_GR_AVSS | – | Ground for DAC Guard ring |
| 186 | DAC_GR_AVDD | – | 3.3V-Power pin for DAC Guard ring |
| 187 | DAC_PVDD | – | 3.3V-Power pin for DAC pads |
| 188 | TEST0 | I | Test pin-connect to ground |
| 189 | TEST1 | I | Test pin-connect to ground |
| 190 | TEST2 | I | Test pin-connect to ground |

A

| No. | Pin Name | I/O | Function |
|-----|----------------|-----|---------------------------------------|
| 191 | XTAL IN | I | External parallel crystal oscillator |
| 192 | XTAL OUT | O | External parallel crystal oscillator |
| 193 | VDD9 | – | 3.3V-Power pin for I/O |
| 194 | VSS | – | Ground |
| 195 | IN_CLK_PORT2 | I | Port 2-Data Clock input |
| 196 | D1_IN_0 | I | Port 2-ITU-R BT656 digital data input |
| 197 | VDDcore8 | – | 1.8V-Power pin for core |
| 198 | VSScore | – | Ground |
| 199 | D1_IN_1 | I | Port 2-ITU-R BT656 digital data input |
| 200 | D1_IN_2 | I | Port 2-ITU-R BT656 digital data input |
| 201 | D1_IN_3 | I | Port 2-ITU-R BT656 digital data input |
| 202 | D1_IN_4 | I | Port 2-ITU-R BT656 digital data input |
| 203 | D1_IN_5 | I | Port 2-ITU-R BT656 digital data input |
| 204 | D1_IN_6 | I | Port 2-ITU-R BT656 digital data input |
| 205 | D1_IN_7 | I | Port 2-ITU-R BT656 digital data input |
| 206 | FIELD ID_PORT2 | I | Port 2-Odd/Even Field identification |
| 207 | VSYNC_PORT2 | I | Port 2-Vertical sync or reference |
| 208 | HSYNC_PORT2 | I | Port 2-Horizontal sync or reference |

C

D

E

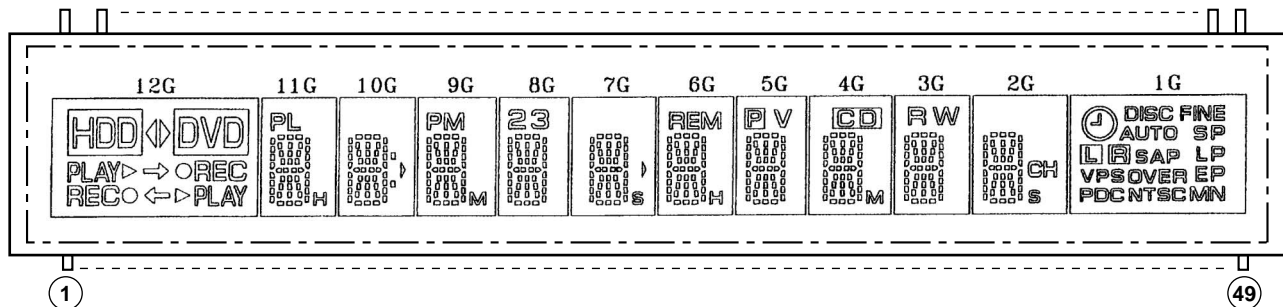
F

7.2.2 DISPLAY

■ VAW1081 (FLKY ASSY :V551)

• FL DISPLAY

• Pin Assignment



• Anode Connection

| | 12G | 11G | 10G | 9G | 8G | 7G | 6G | 5G | 4G | 3G | 2G | 1G |
|-----|-------|-----|-----|----|----|----|-----|----|----|----|----|------|
| P1 | PLAY▷ | d | d | d | d | d | d | d | d | d | d | NTSC |
| P2 | ← | n | n | n | n | n | n | n | n | n | n | MN |
| P3 | REC◊ | p | p | p | p | p | p | p | p | p | p | VPS |
| P4 | ◊REC | r | r | r | r | r | r | r | r | r | r | OVER |
| P5 | ⇒ | e | e | e | e | e | e | e | e | e | e | EP |
| P6 | ▷PLAY | c | c | c | c | c | c | c | c | c | c | LP |
| P7 | DVD | g | g | g | g | g | g | g | g | g | g | SAP |
| P8 | ▷ | m | m | m | m | m | m | m | m | m | m | R |
| P9 | ◁ | f | f | f | f | f | f | f | f | f | f | L |
| P10 | HDD | b | b | b | b | b | b | b | b | b | b | SP |
| P11 | - | k | k | k | k | k | k | k | k | k | k | AUTO |
| P12 | - | j | j | j | j | j | j | j | j | j | j | FINE |
| P13 | - | h | h | h | h | h | h | h | h | h | h | DISC |
| P14 | - | a | a | a | a | a | a | a | a | a | a | ⌚ |
| P15 | - | PL | ▷ | PM | 2 | ▷ | REM | P | CD | R | CH | - |
| P16 | - | H | Col | M | 3 | S | H | V | M | W | S | POC |

• Pin Connection

| PIN NO. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 |
|------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|
| CONNECTION | F- | NX | NP | NP | NX | NX | NX | NX | 1G | 2G | 3G | 4G | 5G | 6G | 7G | 8G | 9G | 10G | 11G | 12G | P16 | P15 | P14 | P13 | P12 | P11 | P10 | NX | NX | NX | NX | NX | P9 | P8 | P7 |

| | | | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 |
| P6 | P5 | P4 | P3 | P2 | P1 | NX | NX | NX | NX | NP | NP | NX | F+ |

*** NOTE ***

- 1) F+, F- : Filament Pin
- 2) NP : No Pin
- 3) NX : No Extended Pin
- 4) nG : Grid Pin
- 5) Pn : Anode Pin

7.2.3 CLEANING

A



Before shipping out the product, be sure to clean the following positions by using the prescribed cleaning tools:

| Position to be cleaned | Cleaning tools |
|------------------------|---|
| Pickup lenses | Cleaning liquid : GEM1004 Cleaning paper : GED-008 |

| Position to be cleaned | Cleaning tools |
|------------------------|--------------------------|
| Fans | Cleaning paper : GED-008 |

B

C

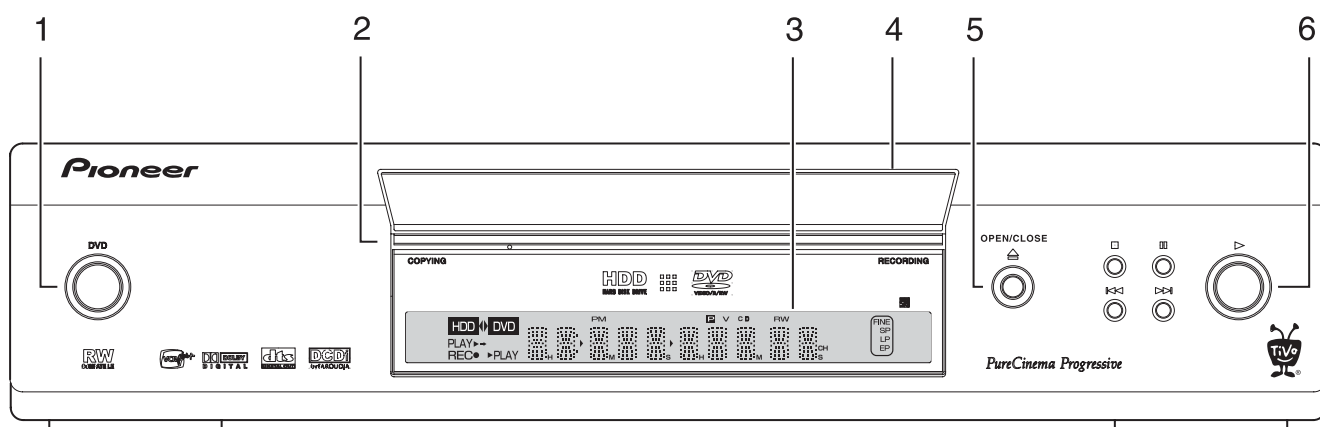
D

E

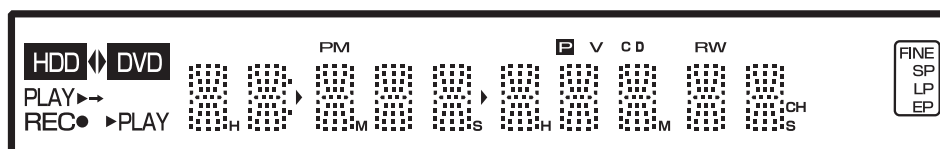
F

8. PANEL FACILITIES

Front Panel Reference



- 1 . DVD Button: Press this to go to the DVD screen.
- 2 . Light Strip: There are three lights (LEDs) under this clear plastic strip.
 - The orange "copy" light on the left comes on when the Recorder is copying a program to a DVD.
 - The blue "play" light in the middle comes on when the Recorder is playing a recording from Now Playing or a DVD, or CD.
 - The red "record" light on the right comes on when the Recorder is recording a program to Now Playing.
- 3 . Status Display: The following illustration shows the placement of lights in the status display. The display in this area changes to reflect the current state of the Recorder.



For example, when you first turn on power for the Recorder, you see a "Power On" message in the center of the display; and when the Recorder is displaying a TiVo screen, such as TiVo Central, you see the word "TiVo." In addition, this area reflects input from the remote control when you use features such as searching for a title or a chapter of a DVD.

Other useful messages:

- When playing a CD, an "S" appears for shuffle mode, an "R" for repeat. In repeat mode "DSC" or "TRK" also appear, depending on whether the whole disc will repeat (ALL) or only a single track (ONE).
- While copying a program from Now Playing to a DVD, the percent complete displays.
- While watching a recording from Now Playing, the display shows how far into the recording you are. (E.g., "1 07 00" means you have watched one hour and seven minutes of the recording.)
- While watching live TV, the channel number appears on the right side, near the symbol "CH."
- When progressive mode is on, a "P" appears at the top of the display area.

A

- While recording a program to Now Playing, the recording's video quality shows on the right side of the display: "Extreme (Fine)"; SP for "High (SP)"; LP for "Medium (LP)"; EP for "Basic (EP)."
- If a disc is in the tray, a symbol for the kind of disc appears at the top of the display: RW for DVD-RW; R for DVD-R; V for a video DVD; CD for a CD.

B

- 4 . Disc Tray : Opens and closes when you press the EJECT button on the front panel of the Recorder.
- 5 . EJECT Button (▲): Press to open or close the disc tray.
- 6 . Control Buttons : These buttons work just like the buttons on the Recorder's remote control (see the inside front cover for more information). They include:

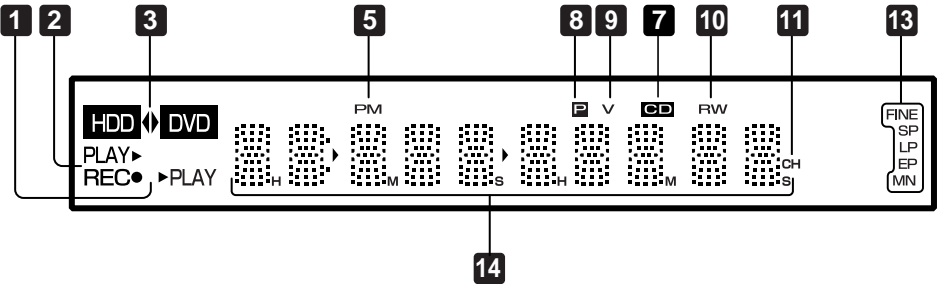
B

- STOP (■)
- PAUSE (■■)
- PLAY (►)
- SKIP FWD (►►)
- SKIP BACK (◀◀)

C

Display

C



D

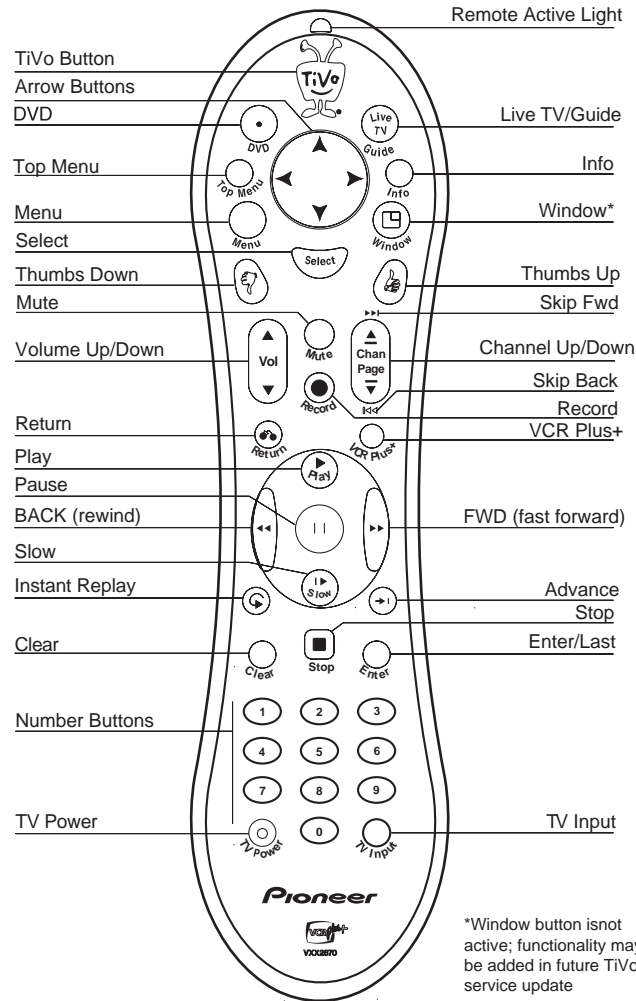
- | | |
|------------------------------|-----------------------------|
| 1 Record/play indicator | 9 V indicator |
| 2 Play indicator | 10 RW indicator |
| 3 HDD exchange DVD indicator | 11 CH indicator |
| 5 PM indicator | 13 FINE / SP / LP / EP / MN |
| 7 CD indicator | 14 CHARACTER DISPLAY |
| 8 P indicator | |

E

F

F

Remote control



TiVo Central, Showcases, or TiVolution Magazine (cont.)



This icon appears if a playable DVD is inserted.



This icon appears if a playable CD is inserted.



This icon appears if a copy to DVD is in progress. All DVD functions are unavailable (playing a disc, copying to another DVD, etc.).

To Do List & View Upcoming Episodes

(These icons appear beside programs scheduled to be recorded.)



Program is an individual recording (not part of a Season Pass[™] or WishList[™]). In other places, it means an item has been selected.



Program will be recorded as part of a Season Pass.



Program will be recorded as part of a WishList.

Channel Banner

(These icons appear in the large channel banner.)



Select to start or stop a recording.



Select to display or turn on Parental Controls.



Select to read new messages.



Select to search for a specific title on the DVD or a specific chapter or time within a title.



Select to choose a different Repeat setting for a DVD.



Appears if you are watching a DVD with multiple camera angles. Select to change the camera angle.



Select to change the audio track and subtitle language settings for the current disc.



(This icon appears if you have the Recorder set to Progressive Output.) By default, the Recorder automatically detects whether a program viewed in progressive (high quality video) format should be shown in Film or Video format. In very rare circumstances, auto detection may result in poor image quality for programs that should be displayed in Video format (relatively few programs should use Film format). In these cases, you can select this icon to turn off auto-detection for an individual program.

Rear Panel_1

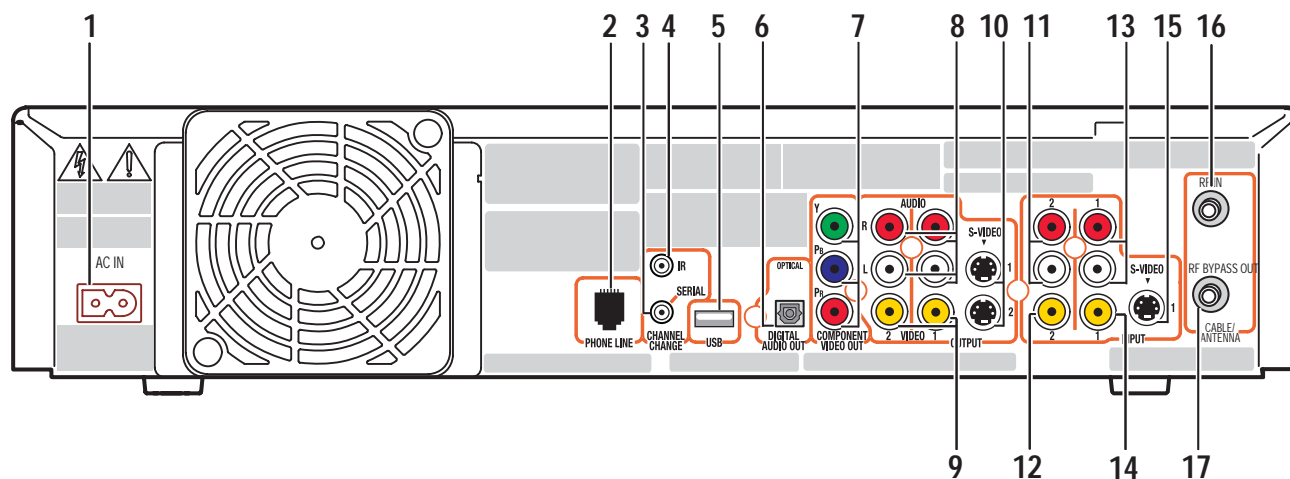
►► Back Panel Reference

This section provides general information about the connections on the back panel of the Pioneer DVD Recorder with TiVo.



Remember, always connect cables from the OUT connector of one device to the IN connector of the next.

Never connect an IN to an IN or an OUT to an OUT.



1. AC ~ In: (Connects to A/C power.) The Recorder does not use a separate on and off switch; plugging it into the wall socket switches it on.

2. Phone Line: (Connects to phone line.) The Recorder uses the phone line to get program listings and to communicate with the TiVo service. If you already have a phone line connected to your cable box, use the provided splitter.

3. Channel Change/Serial: (Connects to cable or satellite box; a Serial/Data connector is not available on all cable or satellite boxes.) This connection enables the Recorder to change channels on a cable or satellite box.

4. Channel Change/IR: (Connects to cable or satellite box; IR stands for *infrared*.) This connection enables the Recorder to change channels on your cable or satellite box. The purple end of the IR Control cable plugs into the Recorder. The two emitters on the other end of the cable are placed in front of the IR sensor on the cable and/or satellite box.

5. USB: (Universal Serial Bus.) Use with a USB network adapter (not included) to connect to a home network, then use a network's shared Internet connection to connect to the TiVo service. Use the connection to a home network to take advantage of the TiVo Home Media Option premium feature package (sold separately).

6. Optical Digital Audio Output: (Connects to A/V receiver.) Use the optical digital audio output jack to connect the Recorder to an A/V receiver with optical digital audio input. To do so, you need an Optical Digital Audio cable (not supplied). The Recorder supports the Dolby Digital and DTS (Digital Theater Systems) digital audio formats. Ordinarily, the Recorder produces tones to indicate when certain buttons on the remote

Rear Panel_2

control are pressed. If you use optical digital audio output, you may not hear these tones. You must also establish a video connection using either an S-Video cable, the yellow plug on a Composite A/V cable, or a Component Video cable.

7. Component Video Output: (Connects to TV.) Component video provides the highest picture quality. You must also establish an audio connection using either the white and red plugs on a Composite A/V cable, or an Optical Digital Audio cable.

8. Composite Audio Outputs: (Connects to TV.) For composite audio out, connect the white and red plugs on a Composite A/V cable to either the red and white outputs labeled "1" or the red and white outputs labeled "2." You must also establish a video connection using either an S-Video cable, the yellow plug on a Composite A/V cable, or a Component Video cable.

9. Composite Video Outputs: (Connects to TV.) Composite video provides a picture with very good quality. You must also establish an audio connection using either the white and red plugs on a Composite A/V cable, or an Optical Digital Audio cable.

10. S-Video Outputs: (Connects to TV.) S-Video provides a higher quality picture than composite. You must also establish an audio connection using either the white and red plugs on a Composite A/V cable, or an Optical Digital Audio cable.

11. Composite Audio Input 2: (Connects to VCR or video camera.) Plug in the red and white ends of a Composite A/V cable to make an audio connection. You must also establish a video connection using the yellow end on a Composite A/V cable.

12. Composite Video Input 2: (Connects to VCR or video camera.) Plug in the yellow end of a Composite A/V cable to make a video connection. You must also establish an audio connection using the red and white ends of a Composite A/V cable.

13. Composite Audio Input 1: (Connects to satellite or cable box.) Plug in the red and white ends of a Composite A/V cable to make an audio connection. You must also establish a video connection using either an S-Video cable or the yellow end of a Composite A/V cable.

14. Composite Video Input 1: (Connects to satellite or cable box.) Plug in the yellow end of a Composite A/V cable to make a composite video connection. You must also establish an audio connection using the red and white ends of a Composite A/V cable.

15. S-Video Input: (Connects to satellite or cable box. An S-Video connector is not available on all satellite or cable boxes.) You must also establish an audio connection using the red and white ends of a Composite A/V cable.

16. RF In: (Connects to a satellite or cable box, to cable without a box, or to antenna.) Use this connector if you are using an RF Coaxial cable to connect the cable box (or cable from the wall) to the Recorder.

17. RF Bypass Out: (Connects to TV.) Any audio/video signal passed to the Recorder through the RF In connector passes out of the Recorder through this connector. Features of the TiVo service such as recording and control of live TV are not available on a signal from this connector.

1

2

3

4

A

B

C

D

E

F